LOUIS BURNS KEYNOTE

Female Voice: Ladies and gentlemen, please welcome Vice President and General Manager of Intel's Digital Health Group, Louis Burns.

[Applause]

Louis Burns: Good afternoon. It's good to be back. About a year ago, I stood in front of you and gave you the beginning glimpses about what our health care efforts were going to be. Over the last year, we've been really, really busy, and I want to share with you what we've learned in the process, share some successes for us as an industry, and talk mostly about the things and the work we still need to get done in the process. As a company, we've been spending time talking to thousands and thousands of health care professionals around the world. They range from doctors and nurses in their hospitals and clinics, biotech icons, pharmaceutical leaders. And then, also, we spent a lot of time with policy makers and policy advisors in the governments around the world, trying to understand how they're going to guide their countries in a really difficult time, as health care becomes a bigger, bigger part of what they do.

Based on the discussions, I'm glad to tell you that we've started to make some pretty good progress. We have a long ways to go yet, but we've started to make some pretty good progress. But the health care crisis for sure is not even beginning to be over, and in fact, it continues to get worse. You know, we see a new aspect of it every day in the press. The story unfolding in the

news around the world -- you can read about 10, 12, or 100 articles, literally, a day about what's been going on. Every nation in the world is struggling today: How do they deliver better care to their citizens, in a cost effective manner? Now against that, as a backdrop, the landscape is changing in such a way that people are living longer, they're living with more and more chronic conditions, and as a result, the challenge continues to grow.

The current system as we know it today, which struggles already, is starting to even struggle more as these problems start to emerge. Two of the biggest challenges that face the adoption and use of technology or an improvement of the acceleration of health care improvement is the government policy and interoperability. And I want to spend some time on both of those today. So, let's start and talk about government policy. You know, the economics of health care have grown to such a level that it is a commanding, if not the commanding portion of every economy on the planet. Remember last year, we talked about the U.S. at 15 percent of the GDP growing to 25 percent. You take a look at the UK, France, and Germany, they're at 10 percent of the GDP; Japan, Brazil at 8 percent. What's common among all these people, all these countries, is it's growing at the same growth rate that it is in the U.S.

You know, for this reason, the governments are being much, much more involved in how they apply health care and what will they do about health care, than any other industry segment

they've ever worked with in their country. And in many countries, if you think about it, the government is the health care system. For example, in the UK, the national health system, better known to most of us as NHS, already employs 1.3 million people. That's more employees than Wal-Mart, if you start thinking about the scale of this. And in the last year, they've treated more patients than ever. They've had better outcomes than ever, but it's against a very difficult environment.

So, instead of me talking about the government needs and issues here, I'd like to let Secretary Hewitt from the UK tell you what she sees.

[Taped segment begins]

Secretary Hewitt: I was Britain's first ecommerce minister. They said at the time I was the first one in the world. And I remember the sheer excitement of talking to some of you guys in the information communications technology world. And the slogan I still remember was 'any device, any place, any time.' Now if I apply that to health care, where we need to get to is 'right care, right place, right time.' I think we're seeing already a big shift, a difficult shift of services from the hospital into the community, into local doctors' surgeries and health centers, but also into the home. And then as health care goes to the patient instead of the patient having to go to health care, elderly people want to stay in their own homes. They don't want to be stuck in a hospital; they certainly, most of them, don't want to be going into a

nursing home. This isn't really about solving technology problems, it's about solving people's problems.

We need your help. You know, governments, we can't do this on our own. Health care providers can't do it on our own. We need your creativity, we need your ingenuity, we need your investment in the health care space, opening the minds of health care providers to what the new possibilities are. We also need you working really closely with our wonderful clinicians and frontline nursing staff. They know what the problems are, they know their patients, they get excited by this stuff when they have a chance. So if you work with them to solve the problems, I think we'll get the breakthroughs even faster.

But this is urgent. We've got an aging population now. We've got health services all around the world running out of money now. So we need to tackle this problem. There isn't anybody else who's going to solve it for us. But together we can do it.

[End of taped segment]

Louis Burns: So we have some significant action items from Secretary Hewitt that we need to deal with. I think she's very clear on the opportunities and what they need as a government to help. She's so clear on this that she and her government have committed $14 billion to the upgrade and improvement of the health care system in the UK, the largest single investment in infrastructure and technology to improve that system.

You know, in this room we have a huge opportunity, which lies in that upgrade in the UK and other parts of the world. But probably most importantly I think we have a huge responsibility to do something to meet her requests, and people like her, her peers around the world.

So let's move to the hospital quickly. We made some progress in this space, working closely with the health care experts really to understand their business needs, because hospitals have business needs. The challenges of adopting technology -- because we come from an industry where you can kind of move the technology, and it's obvious. This is an industry where health care does not use technology to a great extent, and so these are massive changes in process and how they run their business. And how IT can actually help them meet their goals, not actually add to their problems. Keep in mind we as an industry are technology experts. And as Secretary Hewitt said, the health care professionals are the health care experts, and we need to work closely with them and listen to them. And we've been using them to help us get through this discovery process.

I want to tell you a story about a hospital in Germany by the name of Asklepios. We've been working with them for a couple years now, even before our group was formed, from the beginning of the concept of the new hospital in Hamburg, all the way through the opening, which is design and construction and integration, we worked closely with them. And it's an amazing

place for many reasons. Dr. Bremen is their CEO, and a clear visionary in what he's trying to do with health care, and most importantly someone who's committing dollars and taking bold moves to try to show that you can do the right things and make a big improvement.

What struck me in the conversations with Dr. Bremen is that over and over and over again, his design point was about improving patient safety and outcomes. It wasn't about saving money. It was about improving patient safety and outcomes, followed closely by improving the environment for the patients' loved ones in the hospital. And I'll tell you now, if you ever get a chance to go to Hamburg, get a chance to look at this hospital, because it's an amazing, amazing result with that design point in mind.

So, things you can see now in the hospital throughout their network is the ability to get x-rays or imaging shared all over their network in a couple seconds, a full 3-D body image everywhere in the network in about two minutes; the actual ability to exchange files and information about the patient from hospital to hospital to hospital. But how many of you here have actually had to maybe fill out a form once or twice when you went to a new health care facility, versus having that information transmitted electronically? In the Asklepios environment, they're doing that today.

The Hamburg Clinic is a role model of what hospitals can and should be around the world. You know, the technology exists today to really make massive improvements from end to end: services, the servers, the mobile stuff. Pat talked this morning about incredible technology to improve in the data center. You'll hear from Dadi shortly about what we're doing in the mobile space. It's really there to take advantage and improve the existing system today. But you know we need to press even further in this process if we're going to help the health care professionals.

If you want to improve the overall workflow within the hospital environment, the most critical issue, the number one issue for the health care provider is having the right information at the right time at the point of decision. In order to do that, you really need to think about how you can design a platform and an infrastructure to deliver on that promise. With that goal in mind, we just completed a really well done pilot at El Camino Hospital in Mountain View, CA.

If you remember, last year I showed you a wooden model up here on stage. I'm sure a number of people that ran on the stage to touch it were disappointed that it was wooden, but it was an early concept that we were playing with and actually working with nurses to try to understand what their needs were. And they were a tremendous set of feedback sources for us. And they're a very aggressive set of feedback sources. So, it was early thinking. And then in the spring, Doug Bush showed

you the early engineering model working. So, we were moving down a pretty good path.

Now what I'd like to do is actually to talk about the pilot and what we've learned. I'd like to introduce Monica [Hite], who is a nursing unit coordinator at the transitional care unit at the hospital, and Monique Lambert, an Intel social scientist who has been working closely with them on the pilot. Ladies, thanks for coming. Thanks for coming out.

[Applause]

Louis Burns: So welcome, thanks. Monique, why don't you start us off and tell us a little bit about what you do and how it all worked on the pilot.

Monique Lambert: Okay, well, I'm a social scientist in the Intel Digital Health group. And basically what we do is we go around and we shadow people in their work environments in the health care space to really understand what people do in an everyday basis.

In the context of the fill test that we did at El Camino, basically what we did, we had a pretty simple objective. And it was really to understand how nurses -- bedside nurses, charge nurses, and hospital supervisors -- would use a mobile clinical assistant. In the particular case of El Camino, it was running an EMR made by Eclipsys, and it's called Sunrise Clinical Manager. And basically we just wanted to understand how something like that

would be used by nurses. When, where, how would they use it? How useful would it be? And also what are some usability issues that they might come up with that would prevent them from being able to use it easily.

Louis Burns: Okay. So Monica, when you actually use this device in a clinical setting, what worked and what didn't work?

Monica Hite: Well, initially the concept of a stethoscope here is an awesome idea. But that initially didn't work. So we didn't use that. But everything else was, the portability of it was awesome. I could take it anywhere in the hospital. And as a charge nurse, that was necessary for me to do it. The handle was great. The weight of it was great. The ability to log in quickly was great, when it worked. Sometimes it didn't work, and we need things to be fast.

Louis Burns: That's the technology stuff.

Monica Hite: Yeah.

Louis Burns: So, great. Why don't we take a look? Can we take a look and show them what you're doing?

Monica Hite: Yeah. So, in my stronger days I can get it out faster. But to log in, hit, tap, and then the RDIF would come up, which would be my personal signature on here for putting in orders. And as the charge nurse, I would need a view of all the patients that were in

my department. I adapted it for my use, because at the time, this wasn't available. And I would put the nurse's name next to the patient that they were assigned to.

Louis Burns: Is that an added feature? Or is that actually a surgical tape?

Monica Hite: That's a Monica-added feature.

Louis Burns: All right.

Monica Hite: Surgical tape.

Louis Burns: Do you have the IP on that, intellectual property? You could actually patent that.

Monica Hite: Really?

Louis Burns: We'll talk later.

Monica Hite: Cool.

Louis Burns: Yeah, they need to pay nurses more money. No. You would agree with that.

Monica Hite: I would agree. Yes.

Louis Burns: Yeah, there we go.

Monica Hite: I would agree with it.

Louis Burns: That part we would agree.

Monica Hite: Okay. So the other thing that you were saying that we needed was, the nursing population is, the average age is about 49 years old, and we need our assistive devices to help us, because the screen's a little bit small. So I would click on the one particular patient that I was looking at that day and go to the orders and make sure that they were appropriate for the patient that we had in a transitional care unit. Or I could to the results section and see what the results were for the day or their x-ray reports, or I could trend view it for their hospital stay. I really can do it, but it, of course, it's the only time it's not working. It really does work. And it's great. There it is.

Louis Burns: There we go.

Monica Hite: And then another example would be to go to the documents just to ensure that the nurses have completed all the documents that are required federally, as well. So the other thing that I did, and Monique helped me with that as she worked with me side by side, is I would need to jot down just bits of information about the patients that I couldn't keep in my head. When you have 16 patients critically ill, there are certain things that you need to do. So I could write this information down and use that when I had to give a report to our medical director.

Louis Burns: Very good. So it kind of feels like we got part of it right, and we've still got some work to do. And Eclypsys has been the partner in this from an EMR point of view and done a fantastic job, and they're also taking the feedback, and we'll try to make sure we do that. So, Monique, what else did we learn in the process that you want to share?

Monique Lambert: Well, one of the things that really came up in the field test, and we've seen this just in our studies in general, is just nurses really don't have any time whatsoever to wait for an application to come up, so really trying to reduce the latency between the time when a nurse is actually trying to do something on a mobile clinical assistant and when he or she is able to do it is really a pretty critical capability, and we kind of take that for granted. But it's really a pretty hard requirement that I think we need to address.

Louis Burns: Very good. So, Monica, you've got the ability to talk to the technology industry, and you can represent you and all your peers. So if you could wave a magic wand and get this group to do what you needed, what would it be? What would you have us do to help you in your work?

Monica Hite: I could give you a laundry list of items that we need. But, first of all, I need you to listen to us and work with us side by side, because sometimes there are things that we don't know that we don't know, but you know it. So listen to us, work with us, make us more efficient. Put yourself in the place of a patient. You

want your nurse to be there at your bedside instead of at a computer putting in data. So longest battery life known to man and bigger screens, but smaller computers. You can do it. I know you can. [Laughter] Today?

Louis Burns: And she has a bedpan for you if you can't. [Laughter] No. Just kidding. So great feedback. So thanks for being here and what you guys are doing. To you especially; thanks for the work you do every day in taking care of those patients.

Monica Hite: Thanks.

Louis Burns: Thanks, guys, for coming today.

Monique Lambert: You're welcome.

Monica Hite: Thanks, a lot.

Louis Burns: Now, what Monica asked for, for we geeks in the room, is context-aware architecture. Everybody knows what that is. And what's important is, it's about delivering the right information at the right time based on locations, roles and procedure. We know how to do this in other industries. It's critical in health care. You know, she doesn't care about the mechanics of the magic. She just wants to do what's been her life passion and calling, and that's take care of patients. And we as an industry can and should do something to help her in that process. She just wants

it to work. It's that simple. It's up to us to figure out what we can do to actually help them do that.

So you've heard from Monica that we got most of it right. We have a lot to learn. It's the right form factor. It's a rugged design. It's a good solution for shift-long battery. We got that figured out. A wipeable chassis -- you don't want your computer dragging, you know, disease from room to room. That wouldn't be very cool. And, as you can see here, the product has to be able to be cleaned, washed and wiped down.

So what you have here is a purpose-built platform, built specifically for Monica and her peers, specifically reflecting an understanding of their issues and what they're trying to get done. And I'll tell you right now, once the nurses knew we wanted their feedback, they're tough, and they tell you point blank. So, what you're seeing is probably one of the toughest customers you'll ever face, but you've also seen as the very fabric of health care is the nurses and what they do every day. So, it's a great example of technology being put to work to solve real problems that really matter.

Now what I'd like to do is introduce one of the key players in bringing this global clinical assistant to the marketplace. Scott Eckert, the CEO of Motion Computing.

Scott Eckert: Hi, Louis.

Louis Burns: So, Scott, thanks for coming. Why don't you tell the group a little bit about these developers, a little bit about what your company does?

Scott Eckert: Okay, thanks for having me. Motion Computing is focused on tablet PCs for selective vertical markets. Health care is about half of our business and it is our primary focus. We, today, are number one in the world in slate form factor tablets. That's about 50,000 tablets in the hands of doctors and nurses in the U.S. alone, and a growing number overseas. So, it's the combination of tablet expertise and a deep focus in health care that led us to partner with Intel in this initiative.

Louis Burns: So, we've been working close, our teams, over the last two months. Why don't you tell us about what you saw in that process?

Scott Eckert: Sure. We've been working with Intel. We've been working with nurses like Monica. She said, "Listen to us," so we did. We've talked to the IT community. We've talked to the software community, and what we heard was a need for a complete and integrated solution. Not just a new tablet or a better tablet, but a grounds-up design that's emphasizing delivering health care better and more efficiently and addressing Monica's needs. So, we also have partnered with the leaders in the clinical information systems to ensure that the software applications that hospitals run, will interact with this device.

Louis Burns: So, how is it different than the tablets that are sold into health care today?

Scott Eckert: This is a new PC category, and there is a set of features that are unique to this device that don't exist on notebooks or handhelds or the PDAs that you might find in a hospital setting. It starts from the standpoint of it's not the technology; it's the hospital's needs. HIPAA compliance, asset tracking, patient care initiatives, infection control, which you mentioned earlier, those are all parts of what the hospital is looking for, and they want a look and feel of the device that looks like a medical device, as opposed to a computer. So, the end result is a very different product and there's a new software platform that the industry and the nurses will work with that makes the whole thing seamless.

Louis Burns: One of the things that's been fun about working with your guys, our teams, is the common passion to do something important in the space. For you, what's been the most exciting part?

Scott Eckert: Yeah, I'm very passionate about this. The whole Motion company is as well. And what's interesting about it is it's the opportunity to deliver useful, relevant, and intuitive technology to people who've been waiting for the right product to come along. You heard from Monica that there's a need for a product like this that just hasn't been served so far. And the opportunity here is to help nurses do their job easier and improve the quality of patient care. And I can't think of a better use for information

technology than that. So, we're excited about the opportunity to bring the next level of IT innovation to health care and partner with Intel on this initiative.

Louis Burns: All right. Thanks for the awesome work. Thanks for being a great partner.

Scott Eckert: Thanks very much.

Louis Burns: So, concept -- about a year ago, pilot, and then soon to be product, focused very specifically on a given part of the health care marketplace. And then one of the things I've observed in this business is that innovation really happens quickly when you get people -- in this case, the nurses, a partner like Motion, the social scientists -- all passionate about doing something important here, focused, and you can do really innovative things really, really fast. So, it's been a real joy in that process. You know, what we're trying to do here is simple: Improve the environment for nurses and their patients in what they do every day.

So, let's move on to interoperability, which is probably one of the more thorny issues in health care, but we need to address it. You know, when you talk to hospital decision makers around the world, they all come back with the same set of feedback. Can you help me make all this stuff work together?

Now, each of us has experienced it personally. I know you have. How many people in the room have went to an imaging center, picked up the x-rays or the MRI, physically, and then drove them to the doctor's appointment for your kid after a soccer injury? How many people have done that? All of us have done that. How many people have filled out the same form many, many, many, many times? Every one of us has done that over and over again. How many of you have noticed -- you know, I just happened to be in a hospital this morning -- on one wing of the hospital, on one floor, three different manufacturers for the same basic equipment for measuring vital signs; three different human interfaces. It's blood pressure, it's heart rate, it's temperature, it's pulse ox. Why do the interfaces have to be radically different in that process? And I could go on and on and on in this process.

So the next big challenge that must be addressed is starting to take on this interoperability issue. You know, against that backdrop, health care market has been served largely by proprietary solutions that have done a really good job. But the decision makers, the people who run the business every day, the nurses and the doctors want it to start to interoperate. It's becoming a bigger and bigger issue. In fact the single largest spend in health care technology is on middleware to actually make proprietary systems to work with each other within the hospital. The single biggest spend in technology.

You know, it's no exaggeration to suggest this is a Band Aid middleware in this case over a really horrendous interoperability problem. As a former CIO, which I did at Intel a few years ago, what I can tell you is when you write custom interfaces, it's too expensive, it's too slow, and when you want to upgrade and move on, you have to drag this horrendous legacy with you that's not compatible with anything. So it slows down innovation and it slows down agility within that system. So this has got to change.

A simple but important very first step towards interoperability is the Continua Health Alliance, which was announced in June. And what's really cool about Continua, it was providers, it was hospitals, it was equipment, device manufacturers, and it was technology companies -- 22 of them -- got together and said in the personal health space, devices in the home, we've got to do something. And it showed this tremendous ability to sit down and get busy about solving an important problem. We launched it; it's grown to 55+ members. I suspect it will be significantly above that before the end of the year, and it's really an excellent sign that if you focus, you can do a good job in a very difficult space. By the end of 2007, the technical guidelines will be out, and in 2008, around the world you'll be able to buy Continua-logoed consumer health products in most stores that you can guarantee that they'll actually work with each other when you bring them home. So if you've got an elder parent and you want to give them the right equipment, you don't have to worry about all the interoperability issues that you're going to have to deal

with. This level of cooperation must be applied in the clinical setting.

So we spent most of our time so far focused on the hospital environment. But we know health care doesn't start or stop at the hospital door. You know, today's global health care system is really already straining, and now you've got this exponential growth in cost. You've also got this massive growth as people live longer. You know, the global age wave is going to crush an already fragile system, but [instead of] talking about it, I want to set up a story for you and let you understand what we're thinking about here.

So what you'll see on the screen is a gentleman by the name of Leo. Leo's 72 years old. Leo's had a heart attack while visiting his daughter in LA; he lives in Seattle. He's had all the treatment. And what I want to show you is what happens thousands and thousands of times every day around the world. Leo's being moved back home. His daughter has a career and a family back in LA, and she's trying to get him settled in.

[Video plays.]

Female Voice: Okay, dad. Dad? Let's go over all this again, okay, because we've got to get your meds organized before I head out.

Male Voice: It's all written down, isn't it?

Female Voice: Yes, but I want to make sure you've got it. Now this one is furosemide. It's a diuretic. It prevents ankle swelling. This one is different. Always make you take this with food, okay?

Male Voice: I know, okay?

Female Voice: Dad, this is important.

Male Voice: I can still read. Look, you go. I'll figure it all out myself. I'm sorry.

Female Voice: It's okay, Dad, I know this is a lot to get used to, but you can do this. You're going to be fine. Okay? Now you're going to have to weigh yourself every day, watch what you eat, cut down on the salt, okay, because it is not good for you.

Male Voice: I know. It still hurts sometimes. Should I call the doctor?

Female Voice: Well if it's hurting, yes, go ahead and call the doctor.

Male Voice: No one ever seems to be there.

Female Voice: Someone will call you back, Dad, and you can always call me anytime.

Male Voice: I know. I'm already too much of a bother.

Female Voice: Dad, please, don't talk like that, okay? You know, maybe we can find someone to help out, you know, locally. Until then, you know, I'm watching out for you.

Male Voice: Yeah, 1,500 miles away.

[End of video]

Louis Burns: This happens every day in thousands of homes around the planet. What you see here is Leo is scared out of his mind. He's got a whole new routine, lots of different pills. You see the pill box -- the colors are really pretty on all the pills, that's good, but the volume is tremendous. His daughter is trying to get back to what she's got to do, and she's feeling guilty as hell in the process. But the world's got to move forward in this case. So, I'm sure a number of you have been through this. I'm sure a number of you are going to go through this.

So, what I want to show you now is the exact same scenario with some early thinking about some concepts that may change how that interaction happens.

[Video plays]
[Video ends]

Louis Burns: So, we think potentially a better way enabled by some pretty straightforward technology, if you think about the problems. One of the things we did notice is that most males over 70 years old

are flirts, as you noticed in this one. And that's pretty consistent around the world. So, videoconferencing should extend the reach, if you will, in a safe way.

You heard Secretary Hewitt talk about this need. It's very, very real. We also know this is one of the most difficult times in people's lives. Our elders, the people that earn and should get our most respect, it's a very scary time for them. And collectively, I think we can do a better job enabling them to live longer at home, safe, in an environment they want. So, something really important going on in this space. We'll be back in the spring to talk a lot more about what we're doing here.

So, the need for change is so, so clear. You heard Monica talk today. They need our help. And we can solve really tough technical problems in a way that lets them do their jobs. You know, there's going to be skeptics in this process. That's one of the most intriguing parts of this business is there's a lot of people that say it can't be done; it's unique; it's too hard; there's no money in it, why are we doing this? I think the case is compelling why we should do this. And it's a very, very good business.

Your heard Secretary Hewitt talk about daring reform; she's implementing. You heard about Dr. Bremen's work in Germany; he's implementing, he's making a difference already. You know, innovators like Scott Eckert -- we're passionate about what

we're doing in this space; he's doing something about it. You know, caregivers like Monica, the basic fabric, the nurses that are in health care, she's asking for our help. We need to step up. We're learning from the experts what works and what doesn't. They're very open in telling us what works and what doesn't. And we need all of us to collectively engage and listen closely to them and start to do something to help them in that process.

So my challenge to you, or to us as an industry, is put your very best foot forward on innovation and health care. Make a difference to Leo and his daughter; make a difference to Monica; make a difference to somebody's loved one in this crowd with what we do. It will be rewarding financially, and even much bigger than just financials. It can be done. We're engaging. I'm inviting you to engage with us. Thanks for your time today.

[Applause]