Intel Developer Forum Opening Keynote

Sept. 13, 2010

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Paul Otellini: Good morning, and let me add my welcome to IDF 2010. Thank you for all – thank all of you for coming today. You know, for the past few years at IDF, I've been talking about how computing is changing. Today I'm going to shift a bit. I'm going to spend most of my focus on how Intel is changing to lead computing in terms of where it's going.

I want to focus my talk this morning on three areas. Number one, Intel's transformation into a computing solutions provider; number two, the essentials that we see at Intel for building strong computing platforms; and thirdly a glimpse into what happens when everything out there becomes smart. But first let's take a look at the environment.

The PC has made a profound impact over the last 30 years. It's been transformed into an indispensible part of everyone's day-to-day life. The PC industry is achieving a significant milestone this year: one million PCs sold per day. I think this momentum will continue, and we're certainly investing for the continuing growth of the PC industry.

We're not alone, though. Gartner believes that this year's growth will be 18 percent in units, and in fact, they're predicting next year – 2011 – will be another 18 percent unit growth year.

What's driving these things? Well, two fundamental things. Number one, emerging markets. Disposable incomes and PC aspirations are growing in emerging markets. And number two, the PC is becoming

increasingly personal. The shift to laptops has driven a fundamental change in demand from one-PC-per-household to one-PC-per-person.

This is leading to what I believe is an untapped market. The total base of installed PCs today is 1.4 billion. That still leaves billions of people around the planet who don't own a computer. But much of the energy in the industry is about the spread of computing beyond the PC. And this is about the proliferation of a multitude of smart devices.

There are about 5 billion devices now connected to the Internet. If you parse them, about 2.8 billion of those are what I would call smart devices. They're devices that have sufficient local intelligence and connectivity to be able to give the user a multi-functional, multi-dimensional experience. That number of smart devices is expected to more than double to over 5 billion by 2014 – in the next four years.

As these devices proliferate, I believe that the users will continue to choose a device with the best experience for any given usage. Another way to say that is I believe that no single device is going to win or satisfy the need and the demands of pervasive computing. But what I see is that people will want to move seamlessly and effortlessly between devices. An example: In China, over 50 percent of the people who download videos to their PC put those videos onto their handheld devices and watch them while they're on-the-go. It's a requirement for seamless connectivity. So with this proliferation of devices and applications, a seamless experience of devices is becoming more and more urgent. It's a problem that we as an industry have not yet solved,

and it's an opportunity that we're going to be spending much of this developer's conference talking about.

At Intel, our vision is to create a continuum of personal computing experiences around the Intel Architecture. We want to provide consistency, and we want to provide interoperability between these devices. Everything that's connected seamlessly to services that require both compute capability locally and up in the "cloud." I believe this yields benefits for both users and for developers, and much of this is made possible by the pervasiveness of the Internet and, we hope, Intel technology.

In order to deliver on this vision, we're in the process of changing how we, as a company, develop and deliver solutions. We're becoming a solutions provider. Ten years ago, Intel was focusing on delivering great chips for PCs and servers. We still do that. But, today, we have not just the best silicon for PCs and servers, but we're trying to deliver a full computing-solutions stack to our customers and developers around the world.

Why solutions? Solutions are required to deliver the consistency and interoperability that we think users are demanding. And, more practically for us in the developer community, it allows for shorter time-to-market and lower development costs for all of our customers.

And so, extending these capabilities to provide the leadership platforms across multiple segments requires two things from Intel.

Number one, you'll see us deliver and develop more complete hardware and software solutions than we ever have in the past.

And, secondly, you're seeing us work at enabling services capabilities based upon our platforms. Let me give you an example. This is one of the key reasons why Intel, about a year ago, acquired Wind River Systems*. In looking at Wind River, we identified a need to enable customers to build out their software and service offerings in handsets, in embedded systems, and in consumer electronics. Wind River had the right products, they had the services and the expertise to deliver on this strategy. Well, a year later, it's been a great move for us and for our customers. The two teams are working well together. Wind River has maintained their profitability. We at Intel are committed to keeping them open and cross-platform. And the acquisition has accelerated not only their business at Wind River, but it's enabled bigger and more Intel® Atom™ processor design wins in our embedded and handheld business units.

So now that I've described how we are transforming as a company, I'd like to take a look at some of the critical elements that I think are essential to build computing platforms of the future. I believe that there are fundamentally three pillars that are necessary for computing devices, going forward. Number one, energy-efficient performance. Every device is demanding more and more performance, but it's also, simultaneously, demanding less and less power. This requires significant engineering to be able to deliver. The second thing is Internet connectivity. This connectivity is enabling new usage models

that we see day in and day out emerging in front of us in terms of variety of devices.

One thing that we worried about for quite some time was broadband. Last year worldwide residential broadband subscriptions grew to 573 million households. This year, 3G will touch a billion users by the end of year; 4G is building momentum.

The third pillar is rather new. It's security. And we'll spend some time talking about this. But, essentially, the time that we all spend online, the amount of data that we're now all accessing online, the amount that we trust our devices to protect us is going up. And, quite frankly, the bad guy threats are going up at the same time. Security is becoming an increasing need for all of us in all devices, and I'll talk more about how Intel is delivering solutions in this area.

Let me begin with energy efficiency. All semiconductor manufacturers live by the same laws of physics. We all, though, are seeing that delivering leading-edge silicon technology is becoming increasingly expensive. It's also becoming increasingly more difficult. More reliance on invention, generation after generation after generation. Moore's Law is, of course, the foundation for delivering energy-efficient performance. Intel continues to set the pace here. We're the only company shipping 32-nanometers today. We have the best transistor technology, the best performance, and the lowest energy in terms of the circuits that we build. We're the first and only company now, after three years, to deliver high-k/metal gate, which is a

breakthrough that enabled us to have 10X lower leakage in our transistors. The 32-nanometer process we ship today in volume provides a very wide dynamic range of devices that span everything from high-performance computers down to the smallest handheld devices.

But we're not stopping there. We are on track to deliver 22-nanometers. Last year, at IDF, I showed you the first working wafer with SRAM devices on it. This year, I'm happy to report that our first microprocessor designed for 22-nanometers is moving through our fabs as we speak here today. It's on track for delivery in the second half of next year.

The second pillar is security. As I said earlier, security is becoming a more complex topic, with the proliferation of devices, the proliferation of people using those devices, and the amount of time and secure data that we're trying to put online. We're trying to change how platforms are secured. We began this a number of years ago in the enterprise portion of our product line by integrating into the PC platform technologies that we labeled Intel® vPro™ technology.

We've now shipped over 55 million of those devices and platforms. Today those platforms are the most manageable and easiest-to-secure devices in the marketplace. And with the latest in vPro technology, security is now easier to deploy and manage and integrate into the software stacks that are also out there. Our plan, though, is to go beyond that and to offer secure capabilities across the entire continuum

of Intel Architecture devices. The recent acquisition of McAfee Corporation*, by Intel, is really focused at adding to those capabilities. We're moving from something that we call a known bad model to something that is a known good model.

Now what do I mean by that? Most security software and security schemes today take advantage of understanding the threat database of all known things that are out there and protecting your PC against those threats as one tries to enter your computer. Going forward, wouldn't it be great if we could move to a known good model, where we could secure the machine, give you a trusted machine that only allowed in trusted software? And that has the potential to eliminate not just the known bad attacks, but to stop what's called in the industry a day zero or first time attack. And we believe that only the combination of hardware- and software-based security can yield this kind of innovation and this kind of protection, and that was the fundamental reason why we acquired McAfee.

The third one is Internet connectivity. Connectivity has been a key bottleneck for both access and for sharing for many, many years. Back in 2003, Intel helped transform the PC industry by launching Intel® Centrino™ mobile technology and integrating Wi-Fi into platforms for the first time. Today, almost 60 percent of PCs shipped in 2010 are notebooks, principally because of that connectivity. WiMAX has been enabled to broaden the access to give you higher bandwidth, and now WiMAX will cover 800 million people by the end of this year. But

until recently our investments inside Intel have been very, very limited outside the PC.

And you saw just a couple of weeks ago that we announced the acquisition of the Infineon Wireless (WLS) Solutions Business* – the wireless solutions technology division of Infineon. This division is a leader in providing 3G and cellular technology and, together, we will become leaders in investing to deliver LTE technology. And then one other acquisition we made in the last couple of weeks, that we announced in the last couple of weeks, is the TI cable modem business. And what we did here was purchase the cable modem products and technologies that allow us to bring the Internet, video and advanced services into cable television, essentially helping to enable our vision of smart TV. But it's not just those technologies, those fundamental technologies that we focus on. We're trying to make the platform more interesting, more exciting in many, many dimensions. You'll see much of this over the next three days of this conference. I believe that the complexity of delivering this continuum requires a variety of technology solutions to improve the computing experiences for users. You'll see some examples in Dadi's talk next. But we're trying to use sensors to improve the capability of embedded systems and mobile devices and even ultimately to desktop PCs.

We're working to improve the capability in I/O and user interfaces in PCs and consumer electronics. You'll see examples of some of those tomorrow.

One of the technologies I'm very excited about is WiDi. This is Intel® Wireless Display. It's something we've now shipped and integrated into our core laptop platforms. And this allows users to seamlessly share Internet-based content or personal content from your laptop wirelessly to the big screen in your living room. We're very excited about this technology. We have over 48 SKUs shipping in the second half of this year. Forty retailers around the world are supporting this in 12 different countries. It's a great example of a technology that starts first in laptops, and as I'll show you later on, will move into other parts of our product line.

Now another key platform capability is graphics. This is a slide I showed in 2007 at IDF. And I said then that our goal was to increase the graphics performance -- I was talking about 3-D graphics then -- by 10X by the year 2010. So I thought I'd give you a report card on where we are today.

With our second generation of Intel® Core™ processors, we've blown it away. We've beat it by a mile. We're delivering 25X improvement on that curve we committed to you just a few years ago.

But there has been a fundamental shift since 2007. Great graphics performance is required, but it isn't sufficient anymore. If you look at what users are demanding, they are demanding an increasingly good experience, robust experience, across the spectrum of visual computing. Users care about everything they see on the screen, not just 3-D graphics. And so delivering a great visual experience requires

media performance of all types: in games, in video playback, in video transcoding, in media editing, in 3-D graphics, and in display. And Intel is committed to delivering leadership platforms in visual computing, not just in PCs, but across the continuum.

Dadi will give you more examples and details of this in his speech following mine. And tomorrow morning, you'll see how we want to bring increasingly visual experiences into our other platforms.

Another critical element of platforms is software. With the proliferation of all of these smart devices, you're seeing an abundance of software environments being generated.

Intel's strategy has for many, many years been something we call "port of choice." Every major operating system that's out there is one that we want ported to our architecture and optimized to our architecture to the point where it runs best on Intel, at least that's our goal. And even this world is getting more complex. Today you're seeing us support Linux, Chrome*, MacOS*, Windows*, Android*, and most recently, MeeGo.

MeeGo is something that we've been building for some years now as an open software platform such that OEMs and service providers can take part of the innovation in software and services that's occurring with this proliferation of devices that are out there.

MeeGo is gaining traction. We're getting support from device manufacturers, from service providers, from OSVs, in netbooks,

tablets, in-vehicle entertainment and, yes, in handhelds. And you'll hear more about this from Renee tomorrow.

Secondly, the application space has shifted. The whole world is about applets now. In fact, across the street in the other Moscone Center this week is the Applets Developers Conference going on.

We understand this shift, and we are committing to having the best applications in the industry run across all of our platforms in this continuum. And one of the things we announced at CES in January was the Intel AppUp platform. What this is intended to do is provide a framework, a common-development environment, for applications on Intel Architecture across a multitude of device types for us and for our customers, such that developers can write once to the framework and have their applications available on the Intel storefront, on our customers' storefront, on service providers' storefront across this multitude of devices.

As we put together all of these elements, what we're focusing on is delivering a robust computing solution across the continuum. And optimizing all of our development activities around this up and down the stack to deliver this is quite a lot of work. But I would like you to get now some feeling for how this work is progressing and have a few of our customers tell you about their work with Intel in the continuum.

[Video]

What I loved about that video was that it showed a number of new customers and some old customers, but using Intel Architecture in new ways. And we get real excited about that because we see the beginnings of the build-out of this continuum.

The third part of my talk today is the evolution of smart. I want to move from talking about ingredients to talking about how making things smart is going to evolve and expand the collective opportunities for all of the developers here this week.

I'd like to start in the PC space and talk a little bit about Sandy Bridge, which Deborah referenced in the introduction. Sandy Bridge will revolutionize PCs, again. The product is code named Sandy Bridge, and we will launch it under the Intel branded name of the 2nd Generation Intel® Core™ processor.

This chip has unprecedented feature integration for us. On one single chip, we put in place all the critical capabilities for computing, but not just the core microprocessor capabilities, but things like graphics, which allow us to now control performance and power across all system requirements. So we can take performance up when you need it, and we can take power down when you don't need the performance, in a very, very seamless fashion. This is, I think, a very important chip for Intel Corporation. It delivers amazing performance, particularly in the area of media capabilities. You'll see some of that when Dadi gets up here later on today. Things that used to take hours to process, in terms of high-definition video on a notebook, with Westmere, our last-

generation product, turned that into minutes. With Sandy Bridge, that processing will take literally seconds.

It will also drive exciting changes in the desktop. The desktop is becoming the central hub for many, many homes. The average media collection stored in an individual home will approach a terabyte by 2014. And now, you can get uncompromised performance in very, very sleek all-in-one designs with the advent of Sandy Bridge. The 2n Generation Intel Core processors will begin shipping in very high volume early in 2011.

The second area we're making smarter is the data center. There are unprecedented demands being brought into the data centers of all types around the world. It's driven in part by the shift to cloud services. In fact, IDC* is projecting a 34 percent increase in public “cloud” spending just this year alone. For many, many years, Intel Architecture has brought the benefits of scale and performance and efficiency to the server marketplace. We're seeing now in the data center those same dynamics are being applied to storage and to networking. The servers, though, are continuing to grow. We're now, with the Sandy Bridge generation, able to deliver everything that a data center needs for its server capabilities, from the micro-server up to the high-performance computing. And later on, as you'll see in my demo, we've brought in capabilities by taking advantage of the high-performance, integer performance of the microprocessors to be able to do things like real-time encryption and three-way video conferencing to better secure network capabilities.

As I said, those same dynamics are shifting to storage. Intel Architecture is winning over the storage leaders in the industry. EMC* has recently announced they're shifting to IA top-to-bottom in their product line. And the last rack of equipment in the data center that has not been populated principally by Intel Architecture is networking. And you're seeing a fundamental shift in routers and switches that Cisco*, Huawei*, and ZTE*, all moving over to IA for those same advantages of scale and performance and power efficiency. In general, we're working to make the data center even smarter, converging around Intel Architecture.

Much of the energy of the industry, though, is in making other things smart. And this is where we're focusing our Intel® Atom™ processor-based product development, in taking the architecture, the microprocessor capabilities, into entire new categories that are out there. One of the ones I'm most excited about is smart TV. This category, I believe, will take off very quickly. One of the first products being launched will happen this fall. With Google* TV, the partnership was between Google* and Intel and Logitech* to be able to develop this. You'll see many, many more companies following on after those initial developments. We're excited about this technology, and we'll show you a glimpse of it in a couple of minutes.

But others worldwide are adopting this, too. All service providers are trying to bring the capability of the Internet seamlessly into their network and integrating it into their content. And two companies that

have recently announced intent to do this around Intel Architecture are Orange* and Telecom Italia*, both in Europe.

The second area, and one that I think all of us have seen in the last couple of quarters, is the emergence of the tablet technology as a real, viable, incremental option to computing that's out there. We have great momentum in Intel® Atom™ processor-based tablets today. You'll see a number of innovative tablets tomorrow in the device section of the keynotes. You saw comments from Cisco with their amazing product, Cius. And you'll see tablets offered through the AT&T* network very, very soon.

Embedded is also getting smart. We're seeing incredible traction here. We're engaged with over 3,800 Atom developer customers to be able to get new designs for the Intel Atom processor in this area of embedded. It's transforming cars, energy management, even things like digital signage.

The goal, though, through all these segments, is to provide consistency, interoperability, the same experience, and, most importantly, the portability of applications across all these devices. I think this is a vast opportunity, not just for Intel, but also for all of the developers here with us this week.

We've talked a lot about this continuum, and I know it's sometimes difficult to internalize. So what I'd like to do is show you an end-to-end demo on how this works. And we'll start with things that people

do very naturally, playing games and creating content. And then, we'll move on to show how it's shared, and increasingly, how it's displayed across multiple devices in the home. And to start this off, let me bring out David from Intel, our pro-gamer.

David: Hi, Paul. How are you doing?

Paul Otellini: Hi David, how are you?

David: Pretty good.

Paul Otellini: Good morning.

David: Good morning. Paul, so you know how much I'm a huge fan of Starcraft 2.* I'm always at home, playing on the Battle.net, and it's on a PC. But what I really want to do is be able to play anywhere, anytime, and of course, that's going to lead me to using a laptop. And I brought a couple here on stage to show you. And here on the left, I have a 2nd Generation Intel Core processor with processor graphics, and here I have a similarly-configured laptop that has a mainstream discrete graphics card in it. And I'm just going to put it through the paces. So with that, it's time to kick some extraterrestrial butt.

All right, let's get to the screens here. We have our Marines, check. We have our marauders, check. Thors, check. And battle cruisers. Oh, yeah…. It's what I like to call my unstoppable force of awesome. Let's get it going now. Here they go into battle. As you'll notice, they're

going through the countryside. It's raining. You notice all the beautiful detail. But you also notice that both screens are pretty much the same, right?

Paul Otellini: Yes.

David: They look the same. And that's the point, is that both systems are very capable of handling today's mainstream games. You know, even during this battle royale. And what I've done also on this processor graphics system, though, is something I started on Xfire*. Basically, it's a video game capture utility. And I'm capturing high-definition video while I'm playing this game. And then, there's plenty of CPU power to be able to handle both.

Paul Otellini: That's not something you could do on a laptop before this, though, easily.

David: Well, you know, before I would do it on my desktop. But now I have the power right here in my lap. So I'm going to take that video, put it on to Facebook*. It kind of got quiet. What happened to my unstoppable force?

Paul Otellini: I think you got stopped.

David: Okay. Well, anyway, I think I need more practice. But I have a laptop, and a choice of whether I want to pay for an additional graphics card, or save that money for games, more stocks, or some Cheetos*. So I've

got to get back to the cube now, and let you get back to your continuum.

Paul Otellini: Okay, David. Thanks.

David: You're welcome, Paul.

Paul Otellini: So David showed, I think, a very interesting and common use model, playing the game, but also capturing the game as it's played, and posting it to his friends so he could share it with them. Increasingly, though, that sharing isn't just going to be on PC-to-PC. I think the sharing is going to be moving towards where most of us spend most of our time looking at screens, which is the living room and the big screen. And to take you through how that works, I'd like Art to take us into his living room here.

Art: Hi, Paul. So here, I have two new products powered by the Google TV OS and applications platform. It's the preeminent OS platform for Smart TV. Over here, I have Sony's* Internet TV. It's a standalone TV with Google* TV built right in, and we'll bring up the Google TV search bar, just to show you that we are running Google TV on it. Over here, I have the Logitech Review. It's a companion box that you can just plug in any existing high-definition television to have the Google TV experience. And I actually have it plugged in. If you want to get comfortable in my pseudo-living room here, we can give a little demo.

So it's very common these days for people to sit in their living room, watching their favorite PBS* content, and have a notebook on their lap to search the Internet, log into Facebook, and skim the news. But at Intel we say technology is about innovation and integration. And, we try to integrate new features wherever it makes sense. And that's what Smart TV is about. It is taking these new features and integrating. So we're watching our favorite PBS content, but with one button I can actually log-in to Facebook.

Paul Otellini: You never know what you'll get on PBS.

Art: And you know what's cool is if I wanted to actually continue to watch my television, I can put it into something called dual-view. So I can go and switch. And now I can watch and listen to my TV while I'm actually continuing to surf the Internet.

So I'm on Facebook, and I see a gaming friend of mine, David. You might have met him earlier. And I see he posted some game-play video, his unstoppable force. And, we actually can go and play that video right from Facebook. We'll close the TV, so we can hear it, and I can already see he's in a pretty bad position. He's going to get killed pretty fast. I think a bunch of people are going to make fun of him. And, I think David is trying to send me an IM. You know, this is just pointing out you can do all the things that you normally do on the Internet. This is the full PC–experience.

He says he's got something to tell me about Project X and that he wants to do a videoconference. So it sounds kind of urgent. We'll get to him in a second, when we go over to a workstation. So I'll just close that. And the other thing I noticed on here is he says something about an HD Starcraft, and I don't know who or what that is. So the beauty of Google TV is that I can actually, with one button, bring up the search box, and I can type in "HD Starcraft" and search the web, and go here, and see what that is. And it looks like he's some sort of game-play commentary – it's sort of like the modern day Howard Cosell of game-play. And some of you younger guys – might have to look up Howard Cosell.

And, with one click of the button, I can go back to the TV. So you see how familiar and natural this experience is, and I search for a wide variety of video and content. That's all because it's powered by the Intel Architecture solution that we've developed for this market segment. So this is smart TV.

It sounded like we had an urgent videoconference, so I'm going to go over to my 2nd Generation Core processor workstation I have here onstage and bring up a video conference. And it sounded like it was about Project X, so it might be somewhat confidential.

Hi, guys. David, what was so urgent that you had to break into Paul's keynote here?

David: Oh, sorry. It was actually Shashi's fault. He actually told me that he had some update on Project X and that he would share it with us, if he could keep it secret. So I set-up this encrypted, multi-party video conference using software from Vidyo*. This is actually the first time we've shown encrypted videoconferencing in a public environment.

Art: So I can see that it's encrypted here. And, I just want to take a moment to explain our set-up on stage, so we know what's going on and why this is actually pretty amazing. David and Shashi are at a remote location, but they're both using 2nd Generation Core processors, just like I have up here onstage. We have an all-in-one system here, we have a workstation here, and our laptop, all with full Intel vPro technology capabilities, including the client side AES-NI support that we're highlighting here. And just to recap what AES-NI is, AES is an encryption standard that's widely used for things like database encryption, banking, and SSL transactions. But security is important to Intel, so we've introduced some new instructions, the AES-NI, with our Westmere generation of Intel® Xeon® processor products. And numerous software vendors, including Microsoft*, Citrix*, Parallels*, and Vidyo* here have been optimizing their applications for it and seeing up to 10X. Yes, 10X performance capabilities on their encryption element. And here we're highlighting, specifically, that Vidyo was able to take a high-definition videoconference and encrypt it. Specifically we're using 256 bits of encryption on a live stream. Now, I know we've talked about the clients, but the heart of all this is, is this server. And, David, can you just tell us what's going on, on that server and what's special about it?

David: Sure, yeah. The server is actually encrypting and optimizing each of the video streams for the best videoconferencing experience. And to do this, the server has to decrypt and encrypt all three video streams with very low latency. It's amazing, right? And, by the way, the server we're using is a Romley platform, which is our next generation Intel Xeon processor with two sockets and eight cores, each with HT-enabled, giving you a grand total of 32 threads of computing power. This is the world's first public showing of this platform since it booted about a month ago. And, it's on schedule for production the second half of 2011.

Art: Wow, 32 threads in a two-socket solution.

Paul Otellini: Pretty amazing.

Art: That's pretty amazing. Now I know this is all pretty cool and this is about the videoconference, but we actually interrupted this for some breaking news from the labs. Shashi, you have some news from the labs? Tell us about it.

Shashi: Hi, Paul. I was just pinging Art about Project X. I can see that this videoconference is secure, so I feel comfortable showing you a working demo. But, I've got to ask you first. Is there anyone else on your side?

Paul Otellini: No, no, there's nobody here.

Art: Yeah, they can keep a secret. Don't worry about it.

Paul Otellini: Just go ahead.

Shashi: Okay. As you know, Intel® Wireless Display has been a really popular feature on Intel Core processor-based laptops in the market today. And, as you know, we've been working on future implementations, and we have something that we just got working today that I really want to show you. It is an Intel development tablet with an Atom processor in it, and we've modified it so that it can stream to an existing WiDi TV adapter. Now this is the first time that you're going to see Intel Wireless Display on a tablet and an Atom processor-based system. I saw David's video that he just posted about his unstoppable army of weakness, and I couldn't let it go, so I just had to make my own version. And I was just about to show the guys in the lab here my favorite part. So as you can see, I have my desktop on my tablet displaying on the big screen TV. Now what's cool about this is that I can show anything on the TV that's also on my LCD, anything that the tablet can play. So let me just bring up the video here.

Shashi on video: See here? Your army just got mowed down by the Protoss Colossi. Oh, look, the Void Rays are having a turn now, too. Kiss your army goodbye. Game over, man. Game over.

Art: Oh, David, that's embarrassing.

Shashi on video: And his minotaur.

Art: But, Shashi, that's very cool. That was all happening wirelessly from the tablet.

Shashi: Yep, wirelessly. No wires. Remember, you saw it here first. Not just David's defeat, but Intel Wireless Display on an Atom-based tablet. Now, this is a technology demo, but you can expect a lot more great things to come out of Wireless Display in the near future.

Art: Very cool.

Paul Otellini: Thanks, Shashi. Thanks, David.

Art: So, Paul, this is just a few examples of how Intel is working to enhance the computing experience across the continuum.

Paul Otellini: Fabulous. Thanks, Art.

Art: Thank you.

Paul Otellini: We wanted to try to put together a demo that showed you what people are doing today, but also how important it is to have that connection between devices over the networks in a very seamless fashion. So being able to take advantage of the high performance, and in this case eliminating a discrete component, lowering the cost of the bill of materials, not giving up any performance for that, creating a high-def

file at the same time, moving it across the Internet, seeing it in your living room again -- software all unchanged -- and back to take advantage of other technologies like WiDi, moving from the notebook into other portable devices that are based upon Intel. Again, taking advantage of all the software that's out there.

And, lastly, using the performance of the new generation of Sandy Bridge to create a secure capability around things like videoconferencing that you couldn't really do with the off-the-shelf equipment before this. All seamless, all end-to-end, all software compatible.

Now, this conference, of course, is focused on developers. Every innovation that Intel comes up with requires innovation on your part, from you, our developer partners. And I think this proliferation of smart devices is just picking up the pace. Software is becoming increasingly critical and increasingly on the critical path for product development. We believe at Intel that a common architecture gives you the ability to reuse your software, shortening your time to market.

Developers have a wide range of software tools that are out there today based upon the Intel architecture of many, many decades now. Success story after success story is being registered in these new areas, as you saw on the video. And we're committed at our company to be able to allow you to benefit from the expansion and breadth of our products as they move from the PC to the continuum.

And why are we excited about this? Well, the compute environment that we live in today is really just the beginning. These are incredible statistics that IDC just published, taking a glimpse or even a guess at what computing in 2020 is going to look like. Fifty trillion gigabytes of data, 2 trillion financial transactions per year, 31 billion connected devices, 4 billion connected people, et cetera, et cetera. The kind of world that we're going to live in – the kind of interconnectivity – is only going to expand. And, it's going to expand much more rapidly than it has in even the last decade.

The landscape's going to get more complex, but if we work together, we can make it simpler. There's a growing need for interoperability and for consistency. Efficient performance, security, connectivity, are all growing in importance over time. Intel's evolving, expanding our capabilities to deliver products to you that meet this new world of computing together. I think is generating exciting opportunities for all of us to move ahead, if we work together. Thank you for your time this morning. Thank you for your attention. Thank you for coming to IDF. Good morning.

[End of presentation.]