

Remarks of Craig Malloy
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It's exciting to be here with you in Boston, one of America's oldest cities—a city with a rich economic and social tapestry. That's appropriate, I think, because Boston is known for the success with which it has combined its historic elements with innovative new development, such as the imaginative project that created the Back Bay area where we are meeting today. It's appropriate because I am here to talk to you about the future of our industry, a dramatic new development that is directly connected to the earliest form of human communication.

It has been said that technology is “the knack of so arranging the world that we don't have to experience it.” While few in this room would share that pessimistic view, I think most of us would agree that communications technology, with its extraordinary benefits, has isolated us from each other, to some degree. We email, instead of calling. Rely on voice mail, instead of answering. Teleconference, instead of sitting down in a room together.

In the interest of efficiency, we have sacrificed the one most satisfying experience in life:
Human interaction.

Today, I want to talk to you about recovering that loss. About restoring the elements of human interaction and socialization to the realm of highly advanced communications technology. About realizing our industry's destiny. I'm here to talk to you about ***getting back to face-to-face communications.***

Our industry isn't about merely improving the productivity of meetings, or increasing the effectiveness of distance learning. Those are important objectives, but they are the ***end result*** of our primary mission. I believe that the central, fundamental mission of our industry—whether you are a manufacturer, reseller, distributor or end user—is to replicate, as closely as possible, the element of live, human interaction in communications technology.

I'm talking about live, real-time, high-definition, on-demand video conferencing. Instant communications that's better than our eyes and ears can process. I'm talking about the marriage

of the logic and efficiency of technology with the almost *tactile* realism of face-to-face communications.

That is our future. *That* is technology as a true art form.

Today, we stand at the portal of this new age in communications. And everyone in this room will be a pioneer of this exciting new technology. Together, we will create new products for the global marketplace that will *transform* the way businesses compete, schools teach, governments serve, and people and organizations interact. Together, we will open up new frontiers in distance communication. Together, we will usher in a new age of innovation and prosperity.

Ladies and gentlemen, *the future of our industry is upon us.*

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History, I believe, will look upon video communications as one of the most significant applications of communications technology of all time. Creating the technology to enable real human interaction over distances is a powerful, inspiring vision. How different would the world be if we could see and hear our family, colleagues, students or business associates—in any city or country around the globe—*instantly*, in perfect imagery and real time?

The time for high-definition video conferencing has come, and I'll tell you why.

We stand at the nexus of three important catalysts for the development of HD video conferencing. One is globalization, which Pulitzer Prize-winning *New York Times* columnist Thomas Friedman describes in his latest book as “the flattening of the world.” The second is the steady drumbeat of progress in technological performance and the corresponding decrease in technology prices. And the third is the innate longing of human beings to connect and interact with others.

When I say “**globalization**,” I'm not talking about world trade or exchange rate parity. I'm talking about the connecting of all of the knowledge centers on the planet in a single global network. About the emergence of completely new social, political and business models. About things that impact some of the deepest, most ingrained aspects of society, right down to the nature of the social contract.

In his book, *The World Is Flat*, Friedman describes his “aha” moment—the instant when he realized the impact of globalization on human progress—as coming during a visit to Infosys Technologies, the jewel of the Indian information technology world. After sitting for an

interview, the company's CEO gave Friedman a tour of its global conferencing center. On one end was a massive wall-sized screen, and overhead there were cameras in the ceiling for teleconferencing. The CEO told him that Infosys can hold a virtual meeting of the key players from its entire global supply chain—for any project, at any time—on that super-sized screen. So, their American designers could be on the screen speaking with their Indian software writers and their Asian manufacturers, all at once.

Globalization and the shrinking of the world has been occurring since the dawn of time. The first stage took place when the hunters and gatherers of our earliest civilizations learned to farm and domesticate animals for food. Because it no longer took all their time to find enough food to survive, they moved away, started remote communities and developed other specializations. These small communities grew into nation-states that began to interact, trade and fight wars with each other. This was Globalization 1.0.

The second stage occurred when companies started to manufacture and sell their products outside of their home countries, nearer to a local market. That was Globalization 2.0.

That brings us to the third stage. Throughout the Cold War, there were just three major trading blocs—North America, Western Europe and Japan/East Asia—all with roughly equal workforce sizes, education levels and wages. Because of technology limitations and trade restrictions, competition was benign. In 1985, the total population of the global economic community was about 2.5 billion people.

But, by 2000, with the collapse of the Soviet Union, China shifted to market capitalism, India's national policy turned outward, and populations exploded. The global economic world expanded from 2.5 billion to 6 billion people.

And, today, hundreds of millions of these new participants have the connectivity that allows them to collaborate, search billions of pages of raw information on the Internet and compete effectively in the global marketplace. They are racing to the top of the economic food chain, and the winners will be those who learn the processes and skills most quickly.

What will happen, as more and more of our global neighbors obtain these new tools? I'll tell you: Innovation. Production. New markets. And the creation of new wealth all over our newly flattened planet—the scale of which we cannot imagine. And it's just getting started.

From this time forward, the IMF, the G-8, the World Bank and trade agreements will not drive globalization. Individuals who understand the newly flattened world will drive it. Friedman called this phase Globalization 3.0, and it will alter the course of human history.

Globalization will people worldwide to collaborate and compete on equal footing in virtually every field of endeavor. And HD video conferencing is the technological breakthrough that will give wings to globalization.

And what are the **technological drivers** that have become mainstream within the past few years and will make this new generation of video communication possible? With its vivid, true-to-life images, HDTV has made conventional broadcast television almost obsolete. As more and more organizations are using Voice over IP to run real-time applications like video conferencing over their IP networks, ISDN has been downgraded to second-class status. Demand for the new high-capacity broadband networks is phenomenal, and the days of conventional audio calls are numbered. Advancements over the past few years in the quality of digital imaging and digital audio processing are changing the landscape of communications technology. And I shouldn't forget to mention low-cost, high-capacity wi-fi network products and presence detection products like IM.

The third catalyst—and perhaps the strongest—is **the human element**. The fact is that human beings are genetically wired to interact face-to-face. Any other form of contact—audio or written—is simply unnatural.

Recently released research data from the University of Exeter, in the UK, suggests that face recognition is hardwired at birth. The Exeter study, which involved showing paired images of faces to babies as young as one day old, supports the idea that humans are perceptive at birth, with a natural ability to pair faces with sounds, such as voices.

I just got back from a family reunion, where I spent some quality time with my two brothers. I live in Texas, Todd lives in Rhode Island, and Scot lives in Minneapolis, where we all converged. I could have just used my reservationless audio bridge number, fired up a web conferencing session and flipped some PowerPoint slides at them. Instead, I spent thousands of dollars to take my family to see them. To see how much hair they had lost, how much their kids had grown. We re-established relationships that distance and time have dulled. We had to have that face-to-face.

That's true because so much of human interaction is non-verbal. Our smile, our style of dress, our posture, our positioning—all send messages that, generally, are more believable than what we say. Research suggests that about 65 percent of social meaning is derived from nonverbal behaviors. And that people pay more attention to visual cues—facial expressions and body movement—than to what we say. In fact, when verbal and non-verbal messages contradict, most adults believe the non-verbal cues. There actually is a portion of our brain, the amygdala, which is on constant watch for facial cues and helps us gauge the trustworthiness of others.

So, we miss out on much of the richness and meaning of our communications, if they don't include the non-verbal element.

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How does this apply to business situations? Well, why do people go to conference rooms to have meetings, when the convenience and cost of an internal bridged audio call and a web conferencing session would be more convenient? Why did I come here today? I could have spoken to you from my office, and my wife might have liked that better because she's going to have a baby any day now. But, I'm here, because this is a better experience for all of us.

We meet face-to-face because humans are inherently social, communal beings who crave the full interactive experience. But, we're rational beings, too. So, we opt for a telephone conference or an email when the distance and time required for a face-to-face meeting outweighs the importance of interacting directly. You might travel cross-country for one meeting, but be unwilling to drive across town for another. It's all about the importance of the interaction.

But, until now, even the highest quality video conferencing has fallen far short of providing a true facsimile of a face-to-face meeting.

Why is that? Why are long audio calls, and even video calls, so tiring?

Again, it's because human beings are genetically wired to interact face-to-face. Anything else is inherently unnatural, and the brain must compensate to fill in the gaps. Our brains grapple with the visual and auditory distortions. They struggle to bring us back to true human interaction—grasping for cues, trying to fill in the missing information that, until now, has been impossible to discern through video conferencing. Information like audio frequency response, which is less than we are capable of hearing, and video resolution that is far inferior to the visual acuity of our eyes.

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So, how can we make this experience better? How can we use the catalysts of globalization and affordable technology drivers to develop video conferencing technology that brings us closer to the face-to-face experience? At LifeSize, we have been working on that challenge for the past two years, and this is what we have determined.

The two most important aspects in true human interaction are *realism* and *timeliness*. So, it follows that those are the two most critical aspects to replicate in video conferencing.

What contributes to realism? Several things do. First, *size*. How can I have a serious business discussion when I am viewing the people I am talking with on 27" monitor? Everyone's head is the size of a Barbie doll! People need to be *life-size* for maximum realism. That's not an overt attempt at self-promotion, but it does have a lot to do with why we named our company "LifeSize." We wanted a name that clearly conveys the concept behind our new high-definition video communications system.

Some of you may be Star Trek fans. Remember when the Enterprise would have too close an encounter with a Romulan ship, or some other alien enemy, would materialize on the huge screen on the bridge? What made that vision so riveting? It was the size of the image projected! Large, widescreen displays make that same engaging experience possible today.

The next critical factor in creating realism is *resolution*. The reason that HDTV looks so good is that its high resolution is beyond the visual acuity of our eyes. When you are ten feet away from a high-definition image on a 50-inch monitor, your eyes cannot see the pixels. The image starts to look real. The person or persons you are speaking with can be life-size at a normal distance of comfortable human interaction.

To have the same effect with a FCIF image—that is, to be outside the visual acuity range—you would need to be ten feet away from a thirteen-inch monitor. That's when the Barbie doll head thing starts to kick in, and the experience doesn't feel real at all. Watching a FCIF video call is like having 20/70 vision and sitting through a meeting with your glasses off!

Here's another way to look at it: Who takes pictures of their kids with a .1 mega-pixel camera? And that's exactly what FCIF is—100,000 pixels. Broadcast TV is about 200,000. DVD resolution is about 350,000. And high definition is one million pixels and greater. The world is exploding with high-definition displays and content. The reason is that HD offers a compelling reason to change technologies. Resolution is very, very important for realism. Besides, Steve Jobs recently proclaimed 2005 the year of HD. Who am I to argue with that?

What about *eye contact*? Even Confucius weighed in on the subject in 500 B.C., when he said, “Look into a person’s pupils; he cannot hide himself.” I think Confucius had it right—eye contact is critical in the context of realistic size and resolution of an image.

The human brain is wired to respond to eye contact. For that matter, so are the brains of animals, whose whole social structure, survival and mating behaviors are built around eye contact. You’ve watched the Animal Channel. With humans, as with animals, eye contact is the first step in interpersonal engagement, setting into motion the interactions that develop and define relationships.

The challenge to resolving the eye contact problem is finding a low-cost, simple camera and display technology that gives a better direct gaze experience. A number of manufacturers and integrators within our industry have developed unique solutions to that challenge.

The next critical component of realism is *audio*. I have always found it interesting that the performance standard in telephony and video communication is so much lower than a professional, or even an amateur audiophile, would demand from their equipment. Our VP of Worldwide Sales, Rob Hughes, is a committed music lover and world-class audiophile. Rob and his audiophile brethren are pursuing the perfect reproduction of music recordings. They thumb their noses at CDs with 22khz audio. Most of them will use only super-audio CD or DVD audio.

I actually have heard Rob say that MP3 coding is a “tool of the devil.” By the way, MP3 coding is far superior to any handset, conference phone or video device that is available today. As with video, our audio standard should be the perfect reproduction of sound produced from a remote location, whether we’re talking about voices, music, crumpling potato chip bags, loud chewing or pencil tapping. Objectionable or not, all of them contribute to the realism of the experience.

Finally, realism requires accurate *spatial orientation*. Video conferencing cannot truly mimic the face-to-face experience unless the voices of each participant are projected from where they are sitting or standing in the room. It’s critical. Some manufacturers—including LifeSize—are developing incredible new technologies in this area that, I believe, will set the benchmark for the new generation of video conferencing.

Life-size people. Video resolution beyond our visual acuity. Eye contact. Perfect sound reproduction. The correct spatial orientation and latency below detectable ranges. Real-time

dialogue. These are the characteristics of the systems that we should be building, as manufacturers—and demanding, as users. Nothing less.

The next generation of video conferencing systems will be secure, simple to operate and allow the end user to stop struggling to fill in the gaps—and to engage, instead, in creative, productive, face-to-face conversations. High-definition, interactive video communications.

Can you imagine the implications—for business, education, government, medicine, the arts, and just about every other conceivable realm of human endeavor? What research can be advanced through collaboration? What new products can be produced through increased competition and productivity? What crises avoided through enhanced, timely diplomacy? How can video communications contribute to the advancement of the developing world? That's why I'm so excited about the future of our industry: *We truly have the ability to change the world.*

Dennis Gabor, the Hungarian-born Nobel Prize-winning physicist who is credited with the invention of holography, once said: "The future cannot be predicted, but futures can be invented."

Today, we stand on the threshold of an expansive, exciting new age of possibilities for interactive human communication, unfettered by the constraints of time or distance. The course of our industry is laid for the 21st century. Will you step through that portal with me? Will you join me in inventing the future?

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