REMARKS BY GEORGIA TECH PRESIDENT G. WAYNE CLOUGH
"Delivering E-Commerce" Logistics Conference, Feb. 11, 2000

I'm pleased to join Jim Kelly as co-host for this Council on Competitiveness conference on the logistics of E-commerce. I want to thank UPS for hosting last night's reception and program, and getting us off to an excellent start. And I am delighted to welcome you to Georgia Tech for this morning's sessions.

Commerce has always had four aspects to it – the right product, at the right price, at the right place, and at the right time. E-commerce excels at the first three. You can find more products on the Internet than in any physical store on the planet. The Internet's competitive nature and low profit margins mean that you can also find the right price. And the fact that you can do business with anybody in the world at any hour of the day without ever leaving home, means that place is no longer even a consideration.

But it's that pesky fourth factor – the logistics required to get the product there on time – that can give E-commerce fits. Any middle-school whiz-kid can put up a website, but when you get to the place where the information super highway turns into a paved road, e-commerce often suffers a flat tire. Managing an inventory of thousands of items and moving them quickly, one by one, is a formidable challenge. The price may be great on that product from Brazil, but what if the logistics of getting it to a customer in Alaska more than doubles the cost?

Commercial shipping systems that were designed around pallets and truckloads, are now called upon to handle more volume than ever before on a package-by-package basis, and to deliver those packages faster than ever. Catalog retailers have already conditioned customers to expect delivery in three or four days, or even overnight for a surcharge, and the instant nature of the Internet lifts their expectations even higher.

However, Internet business researcher Bizrate-dot-com says that during the recent holiday season, more than a fourth of Internet orders did not arrive by the promised date. Some orders that were promised in two weeks took two months. In other cases, the wrong order reached the wrong customer. Forrester Research recently predicted that online retail would grow from $20 billion last year to $184 billion by 2004, but also warned that "the e-commerce boom risks being halted by logistics chaos."

Too few Internet companies offer customers the opportunity to check orders online. Some provide for e-mail queries, but few have live bodies at the other end to answer specific questions. Many simply reply with a canned message indicating that customers

will be notified if the product they ordered is not in stock. Returns are equally problematic. Some companies offer full refunds, but others charge a restocking fee for returned items. Internet observers are beginning to suspect that e-Bay has become the default for unwanted e-Christmas gifts.

Brand new Internet companies are often completely lost when it comes to logistics, and even experienced bricks-and-mortar companies can find that the logistical reality of e-commerce exceeds their worst nightmare. Toys R Us went online last August expecting to handle its e-business with 70 stockroom employees from a suburban Washington store. Two months later the company had 1,200 employees at a hastily acquired warehouse in Tennessee. Over the holidays, those employees worked 49 consecutive days; supervisors slept in sleeping bags under their desks; and they finally packed up the last of their online Christmas orders sometime in January.

By contrast, Wal-Mart is the Mark McGuire of company-run e-commerce logistics. As Jim Kelly noted last night, Wal-Mart has achieved significant sales growth while holding inventory growth to a minimum. Even as it was going online with 600,000 products, the company was cutting $1.4 billion a year from its inventory costs by improving supply chain management. Yet even Mark McGuire is sometimes the victim of bad pitching. Wal-Mart says that at any given time as much as $1 billion in inventory is held up at the receiving bays because its cartons do not contain enough information to direct it properly.

When Nike went online with their athletic gear, they didn't even try to do their own logistics. They hired an expert – UPS Worldwide Logistics – to run their Internet logistics in a separate operation from the system that stocks bricks-and-mortar stores. Last night Jim described for us how that process works with his example of the fictitious RoundPeak-dot-com.

Retail e-commerce is still in its formative stages. The logistics still need a lot of work, as do other parts of the process, as this week's hacking incidents at major dot-com sites have demonstrated.

Online retail has gotten the lion's share of the attention. But business-to-business e-commerce is expected to grow even faster than retail and be as much as 10 times bigger. Forrester Research pegged business-to-business transactions at $100 billion last year, up from $43 billion in 1998, and predicts they will reach $1.3 trillion by 2003. The Boston Consulting Group is even more enthusiastic, projecting $2.8 trillion worth of business-to-business e-commerce in 2003.

Business-to-business e-commerce is not driven by the wants and whims of retail customers, but by meat-and-potatoes decisions that have to work to a company's advantage. As a result, it has been a little slower and more conservative in its development than retail. But business-to-business e-commerce has some built-in advantages that will enable it to surpass retail. For starters, it is more stable and does not feature the loss margins that are plaguing many online retailers.

Businesses also have a much clearer sense of who their purchasers and suppliers are, and an established logistics pattern already exists, resembling a hub and spokes – a central company connected to an array of suppliers and service providers. E-commerce makes those relationships more open and competitive – suppliers are no longer competing with a few known rivals, but with any company worldwide that does Internet business.

General Electric's Trading Process Network offers suppliers the opportunity to bid online, as well as providing an electronic supply catalog for its purchasers. It is currently conducting $1 billion of business a year online, and says that its procurement cycle has been cut in half and its processing costs are down by a third. IBM now does a quarter of its business on the Internet – $20 billion a year.

But in the business world, the Internet is more than simply a transaction convenience, as it is for retail. Information technology is beginning to extend interactive communications throughout the entire supply chain, and in the process it is becoming a platform for organizational innovation and change.

When Internet communication permeates the supply chain, suppliers can learn about the needs not only of their purchasers, but also of the consumers their purchasers serve. Rather than hobbling together a group of independent, off-the-shelf products, purchasers and even consumers can use the Internet to influence CAD/CAM and get the exact integrated solution they need. Trouble-shooters can quickly reach back through the supply chain to address problems at the source. Inventory can be managed and tracked so that it arrives exactly when the customer needs it without spending inordinate amounts of time in warehouses along the way. In essence, the supply chain will become a "demand chain."

Ford Motor Company will tell you that when you use the Internet to link technology centers, plants, suppliers, marketers, dealers and consumers, amazing opportunities begin to open up. Not only does the whole process speed up from start to finish, but everybody saves money. Processing time and paperwork go down; designers have a clear reading of what consumers want; plants can get the best deals from suppliers;

dealers can reduce expensive inventories; and consumers who custom-order their car online won't end up paying for features they don't need or want.

The changes that e-commerce will bring to the way business is organized and operated are just in their infancy, and no one is quite sure what they will look like when they've grown up. But businesses are already scrambling in a chaotic and rapidly changing environment, and the implications for logistics are colossal.

In the new age of e-commerce, the tools for success are logistics and supply chain management. Bill Capacino of Andersen Consulting expects to see the gap widen between the best supply chain managers, who will use information technology and a customer-focused organizational structure to keep getting better, and the average supply chain managers, who will struggle just to remain average. To use biblical terms, in this new millennium there will be two kinds of companies – "the quick and the dead." And their logistics capabilities are what will sort them out.

So we are here to take a hard look at e-commerce logistics, and to discuss the policies and processes that can help to smooth it out and speed it up. This is one of the many fields in which Georgia Tech has expertise to offer. We have been ranked first in the nation in industrial and systems engineering programs for the past nine years in a row. Included in that ranking is our Logistics Institute, which conducts international research and educational programs, and is a founding partner with the National University of Singapore in the Logistics Institute-Asia Pacific.

Georgia Tech's Logistics Institute offers expertise on such E-commerce problems as streamlining manufacturing processes, organizing warehouse systems, scheduling transportation crews and fleets, designing delivery zones and routes, developing distribution networks for shipments that are "less than a truckload," and creating vendor-managed resupply systems. The Institute also develops technology for use in logistics systems.

On the educational side, Logistics Institute programs have served more than 4,000 participants from 1,500 companies over the past eight years. Beyond continuing education programs, Georgia Tech and the National University of Singapore offer dual M.S. degrees in logistics. And in April Georgia Tech will begin offering the first Executive Master's Degree in International Logistics in the United States. This unique program includes a two-week residency in Europe and a two-week residency in Asia in conjunction with the Logistics Institute-Asia.

Georgia Tech's partners in the Logistics Institute are the National Science Foundation, several other universities, and two dozen corporations and government agencies that are leaders in logistics. Several of the Institute's partners are represented on this morning's panel, including UPS, Home Depot, Ford, Manhattan Associates, and the U.S. Postal Service. These partners help to set the direction of the Logistics Institute's research programs and monitor its educational offerings, so that the work of the Institute is closely focused on the practical needs of industry.

Georgia Tech has a long tradition of working closely with industry to solve practical problems. We lead the nation's universities in providing economic development and technology-transfer assistance, and we rank fourth in industry-sponsored research. And we are going to continue to be your partner as we all move together into this new e-commerce economy of the 21st century.

The point of logistics is to get the right package to the right customer at the right time. A key ingredient in accomplishing that task is transportation, and we are honored to have as our keynote speaker America's most knowledgeable expert on transportation, U.S. Secretary of Transportation Rodney Slater.

In a few days Secretary Slater will celebrate his third anniversary as head of the U.S. Department of Transportation and supervisor of the nation's highways, airways, railways, subways, and waterways. It's a job that calls for him to jump-start stalled labor talks with unions from airline pilots to the Teamsters. It calls for him to crack down on motor carrier cowboys, promote seatbelt use, and demand that airlines treat passengers fairly. It calls for him to run the federal Department of Transportation, which has 100,000 employees and a $40 billion budget, and demands the administrative skills of a Fortune 500 executive.

But Secretary Slater also understands the role of transportation in economic development, and he has been very pro-active in this area. He knows highways from his days as head of the Federal Highway Administration, and he ran that agency so efficiently that Democrats and Republicans alike recommended him for Secretary of Transportation. As head of the DOT, he has increased highway investments by 20 percent while decreasing staff by 10 percent.

More recently he has been traveling the world, negotiating open skies agreements with other nations to enable the freer movement of air cargo and passengers. Nearly 100 nations were represented at a conference he hosted in December on the role of aviation in promoting global economic growth. He has taken the lead in broadening aviation relationships and opportunities, because he believes that a common international vision

of aviation will promote economic development, enhance air safety and improve service.

In addition, he is supporting the development of magnetic levitation rail with research grants, and his staff recently completed a 20-year plan for maritime infrastructure. If you've been adding all this together, it should come as no surprise to hear that Secretary Slater is an active proponent of better-developed intermodal transportation systems. And he is presently crafting standards and encouraging the development of a national Intelligent Transportation System.

I have had the honor of meeting and listening to Secretary Slater on several occasions, including when he spoke here in Atlanta at a technology forum Al Gore hosted, then again at the Council on Competitiveness Executive Committee meeting last year at this time, and I visited him in his office last summer. Georgia Tech is also proud to have one of our professors, Oliver McGee, serving in the DOT as deputy assistant secretary for Transportation Technology Policy.

At this time I am pleased to introduce the United States Secretary of Transportation, Rodney Slater.

       (SLATER SPEAKS)

Thank you, Secretary Slater for those insights. Transportation is a critical component of e-commerce logistics, and it is great to have a Transportation Secretary who is tuned in to the needs of this rapidly growing economic phenomenon.

At this time we are going to take a brief break to prepare for the upcoming panel discussion. We invite you to have a cup of coffee, but please be back in your seats by 9:10 so that we can get underway again.

       (COFFEE BREAK UNTIL 9:10)

FOLLOWING COFFEE BREAK:
Logistics is clearly the goose that lays the golden eggs of e-commerce, and the point of this symposium is to identify and address the forces that are threatening to strangle the goose. For the next section of our program, we have convened a panel of high-level e-commerce executives and experts from private industry, government and higher education for a roundtable discussion of the barriers and challenges that need to be overcome for e-commerce logistics to function smoothly and efficiently.

We are honored to have as moderator of the discussion, Dr. Bruce Guile, who has more than 20 years experience in industry organizational analysis and strategy development for science and technology-driven organizations. He is a founding principal and managing director of the Washington Advisory Group, a consulting firm that provides strategic scientific and engineering advice to corporations, universities and governments, and is on the web at TheAdvisoryGroup-dot-com.

More to the point, he is the author of the section on "Express Package Transportation, Logistics and E-Commerce" in the 1998 Council on Competitiveness publication entitled *Going Global: The New Shape of American Innovation*. He has also written a number of other publications on technology, innovation and the role of small, high-tech companies in the economy, and he edits the "Policy Prescriptions" section of the MIT Press *Journal of Industrial Ecology*.

Prior to founding the Washington Advisory Group, Dr. Guile was director of the Program Office of the National Academy of Engineering. His educational background is a unique combination of computer science, English literature, and public policy.

I am pleased to welcome Dr. Bruce Guile to Georgia Tech and this symposium, and I invite him to introduce the panel and get the discussion underway.

(PANEL SESSION; JOHN YOCHELSON WRAPS IT UP)

INTRODUCTION OF GOV BARNES
E-commerce is a powerful growth engine in Georgia, and this state is projected to be among the nation's fastest growing e-commerce states in the coming years. Metro Atlanta ranks 11th in size among the nation's major cities, but is 8th in terms of the percentage of that population that is online. We are home to logistical giants like UPS, and web-masters like MindSpring, which was incubated here at Georgia Tech and recently merged with EarthLink.

Georgia can also lay claim to the world's biggest single e-commerce deal to date – the purchase of a $40 million jet from Gulfstream Aerospace in Savannah. The customer examined jets inside and out using 360-degree imagery on Gulfstream's website, then worked out the details of the purchase by e-mail. The only part of the deal that was not conducted over the Internet was a test-flight.

Georgia is also attracting and creating high-tech jobs faster than any other state in the nation. We presently have some 20,000 people working in information technology, and

that number is expected to grow to more than 90,000 by the year 2006 – a 350 percent increase in six years.

We know that e-commerce leadership means cultivating an inter-related, chicken-and-egg type relationship between research, industry and an educated workforce, with each one helping to drive the others forward. And we are fortunate to have a governor who is committed to helping Georgia move ahead on all three of those fronts.

Roy Barnes is Georgia's first governor to routinely carry a laptop. He had barely been inaugurated last year when he unveiled the Yamacraw Mission, a trend-setting technology initiative designed to position Georgia as a leader in software engineering and electronic design for the next century by simultaneously educating the technology workforce, conducting the research, and making the venture capital available.

Georgia Tech is proud to be a partner in the Yamacraw Mission and take a leading role among the institutions of the University System of Georgia that are now gearing up to produce 2,000 design engineers and computer scientists a year by the year 2004.

Governor Barnes has also lent his endorsement to another high-tech initiative here at Georgia Tech – the iXL Center for Electronic Commerce, which is located in the DuPree College of Management. And the research and educational opportunities provided by this new center will make a significant contribution to Georgia's rapidly growing high-tech business community.

His computer efforts inside state government have moved Georgia from 48th to first among the states in how well the Internet is used for government applications, according to the Center for Digital Governance. And he wants to create a Technology Authority to consolidate procurement and management of technology across state government.

If you've been reading the papers, you know that at the moment Governor Barnes has major education reform legislation before the Georgia General Assembly, among a number of bills he is trying to get passed. And the fact that he has made time to break away from the legislative session and be here with us today is an indication of his commitment to the support the development of Georgia's e-commerce sector.

Governor, Georgia Tech is pleased and proud to be a partner with your administration in your efforts to stimulate Georgia's high-tech economy. We are honored to have you here and invite you to say a few words at this time.

(BARNES SPEAKS)

CLOSING THE CONFERENCE

This has been an extremely stimulating and informative symposium, and I would like to thank all of the participants who contributed to it. We are going to compile and publish a report on the proceedings, and we will get that to each one of you as soon as it is available.

(ANNOUNCEMENTS FROM THE COUNCIL ON COMPETITIVENESS)

Although this concludes our formal program, we know that we are now well into the lunch hour. We also know that our formal program has kept a brisk pace, with little time for conversation or networking. So I would like to invite and encourage all of you to stay for lunch, which is now being served in the room right next door, and to use this time as an opportunity for informal discussion and networking.