

# Shipping technology streamlines UPS' holiday rush

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When Keith Short began delivering packages for UPS 23 years ago, he used bulky pads of paper to track parcels and pens that froze in the cold. Today, Short scans packages on and off his truck with a handheld computer that tells him what to deliver where and when, and can even direct him turn-by-turn.

"The whole route is in here," said Short of his handheld "DIAD" computer - short for Delivery Information Acquisition Device.

The handhelds - now in the fifth generation - have made UPS drivers' jobs more efficient, especially during the peak holiday season when UPS picks up and drops off millions upon millions of packages each day.

The ideas for improving the technology percolate in the offices of UPS's Information Services Group in Timonium, Md. A team of 80 [mathematicians](#) and engineers there makes forecasts about the shipping world of the future and works to apply those lessons to how the parcel company delivers today. [Statisticians](#) perform advanced math to figure future shipment demand, industrial engineers conduct time- and work-flow studies, and software designers write the programs to apply what they learn.

It all ends up in the technology behind the routing and dispatching of packages handled by the brown delivery trucks.

"It's my job to set up a road map of where we need to be ... and look out

10 years," said Jack Levis, an engineer and director of the group. "We're deploying things today we thought through 10 years ago, and are constantly updating, looking at where we need to be in the next five or 10 years."

Years ago, the group foresaw the growth of the Internet as a marketplace for buying and tracking goods that UPS would need to deliver, but few could have predicted exactly how e-commerce would reshape the shipping business.

While the December holiday rush always has been primetime for UPS and rival shippers, the online shopping boom has led to record-setting volume. UPS expected to see more than 69 million online package tracking requests on Tuesday - the peak day for online tracking, compared to an average of 32 million requests a day.

That was to be followed Thursday by the busiest day of the season, when UPS expects to deliver a record 28 million packages. That's about a million more than on last year's peak day and nearly double the typical 15.8 million daily deliveries.

To keep up, the shipper has hired 55,000 seasonal workers to help drivers or sort and load packages.

Rival FedEx had said it expected a 10 percent increase on its peak day - Dec. 10 - when it more than doubled its daily deliveries to 19 million shipments.

The growth of online shopping also has brought rising expectations. Consumers want free shipping incentives, shorter delivery times and more last-minute shipping options, such as same-day shipping and even the same-day delivery that retailers such as Walmart.com have begun promoting, experts say.

To offer same-day shipping, retailers have resorted to sending packages from their store inventory rather than from a warehouse, said Al Sambar, a retail strategist with consulting firm Kurt Salmon. Those promising same-day delivery might use couriers instead of conventional delivery services such as UPS or FedEx to get it there on time, he said.

The consulting firm expects many online retailers will offer later-than-ever shipping dates, even through Saturday, just three days before Christmas, guaranteeing Christmas Eve delivery.

"You really see the dates expanding much closer to the holiday than you would have seen in years past," Sambar said. "Many, many more retailers have added or expanded their ability to ship same day by creating the ability to ship from their own store inventory. (That way) they can ship even later into the season."

Anticipating what customers will want years down the road is part of the role of UPS' "package process management group" in Timonium.

At the core of what the group oversees is something called "package flow technologies," a data project started in 2000 and first used in 2003 aimed at more efficiently moving packages through hubs and loading them on trucks. Before 2003, workers who loaded [delivery trucks](#) had to memorize up to 2,000 pieces of information and underwent six weeks of training to master the system.

The Timonium group turned the data behind the delivery operation into a computerized system that relies on "smart labels" that tell where packages go, while allowing UPS to customize deliveries.

"The old system worked fine ... but everyone had to have the knowledge of the operation in their heads," Levis said. "Before, we were training thousands of people where packages went. Now we just update a

database, and we've made our models smarter and smarter."

The continuously updated information loaded into the handheld computers tells the drivers, for example, whether a customer won't be home and wants the package delivered at another time, or that it should be delivered to a neighbor's house or to a back porch instead of the front door.

The group also helped develop UPS My Choice, a service that now has 2.2 million registered users, that sends customers emails or texts the day before their packages are to be delivered and lets them adjust the time or location.

"A lot of what we work on is simplifying jobs, and when people's jobs become simpler, we can become more personalized ... and can provide new services," Levis said.

At UPS's Baltimore hub, Short prepared for his route last Thursday by checking his computer's small screen. Scanning the electronic list, he could tell instantly where each of the packages were located among those piled up in his truck. The device also helps him give the most up-to-date information to customers.

"As a customer, you want to know where is my package and what time will it get here," he said. "This time of year, the biggest thing is people order (online) and get anxious because it's Christmas. If you go to someone's house and they've ordered something else, they'll say, 'It should be here.' I say, 'Don't worry; it will be here.' "

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