

What brings personal jets to the masses? Lots of computing

By Kevin Maney
USA TODAY

Tech industry veteran Ed Iacobucci seems an improbable guy to start a new kind of airline. It's like Donald Trump starting a chain of Laundromats, or Tom Cruise marketing an anti-depression drug.

Pretty jarring, in other words.

But he isn't really starting an airline, much as eBay didn't start a flea market. Iacobucci is a one-time IBM tech whiz and founder of software maker Citrix Systems. Over the past four years, he and his team have built a breakthrough computer system for solving highly complex optimization problems.

An optimization problem is like when a mom has to pick up one kid at soccer, one at dance, buy groceries, walk the dog and volunteer at church, and has to figure out the most efficient way to do them all. Now try that for hundreds of moms and hundreds of tasks all at once.

"This is hard stuff," Iacobucci says. "There's a lot of new science involved."

His team is using this system to launch DayJet, the first true on-demand air service. Such a service could not exist without the new computer system. Basically, Iacobucci has started a technology company that will make its money by flying people around.

DayJet certainly has sizzle. The company, based in Delray Beach, Fla., launched on Monday with Iacobucci



DayJet

Smart CEO: Ed Iacobucci's computational prowess makes it possible for DayJet to match microjets with people in different cities who want rides.

getting praise from Florida Gov. Jeb Bush. It promises to bring corporate-jet-style travel to midlevel managers and salespeople who otherwise find themselves schlepping in their cars from, say, Montgomery, Ala., to Jackson, Miss.

DayJet says it will start flying between five cities in Florida — it hasn't said which ones yet — later this year, and will expand to 20 cities in the Southeast by the end of 2007.

The company will focus on regional routes between smaller cities ill-served by scheduled airlines. Customers will be able to go on DayJet's website and order a three-seater jet to pick them up. The cost: about \$3 or \$4 a mile.

And talk about a hot ride. DayJet will operate the first microjets off the

assembly line at start-up Eclipse Aviation. These babies will elbow into the existing small-jet market the way the Mazda Miata brought the little sports coupe to everyday life. You want something to brag about — travel to your meeting aboard an Eclipse.

But this is where aviation leaves off and the techies come in. For starters, Albuquerque-based Eclipse was founded by another former tech industry player — Vern Raburn, who'd been at Microsoft and Lotus Development. Raburn and Iacobucci have known each other since the days when they could argue about whether IBM's OS/2 operating system — which Iacobucci helped develop — would overtake Windows. (Um, it didn't.)

In fact, as weird technology ties go, one of the investors in Eclipse is

Microsoft Chairman Bill Gates. In the 1990s, when Iacobucci was Citrix's CEO, Gates' Microsoft tried to crush Iacobucci's then-baby company. But Citrix is now a big company run by a different CEO.

Anyway, after Iacobucci left Citrix, he scouted for something new to take on. He seems to enjoy stuff that's extremely complicated and supposedly can't be done. Iacobucci told me he got thinking about a Web-enabled new model for air travel, spurred in part by Raburn.

A computational mountain

If you have a bunch of little jets and a bunch of people in different cities who want a ride, Iacobucci thought, software should be able to figure out the most efficient way to scatter the planes so they can transport the people — while charging enough to make a profit but not nearly as much as a traditional charter plane service.

Good idea, until you start considering all the variables involved. Matching people, cities and aircraft seats is tough enough, but add in crew schedules, maintenance, fuel costs and the uncertainties of weather — plus the need to quote ticket prices before all the variables are in place — and you've got a

computational mountain no one had yet climbed.

"When I told our team what we wanted to do, they went like this," Iacobucci says as he makes a cross with his fingers — the way you'd ward off vampires. That's serious, considering his team includes a couple of former Soviet rocket scientists and the complexity theory department at Georgia Tech, which helped DayJet crack the problem.

As customers put in their requests, the system continually crunches all the departure and arrival requests, plane availability, weather patterns and so on, coming up with a new best answer for schedules and prices every five seconds, always trying — as the DayJet folks say — to get the solution "within 2% of optimality."

You have to appreciate how remarkable that is. When you're making everyday, multi-faceted decisions — What should I make for dinner? Should I finish this report or see my kid's soccer game? — it's pretty unlikely you ever get within 2% of optimality. I think Donna Reed used to, but I'm sure that's escaped every other human since.

The DayJet system crunches answers and ranges of probability until a couple of hours before jets would

have to take off. "Then the schedule starts to gelatinize," says Brad Noe, DayJet's VP of engineering. "And it comes up with a plan."

The system fires off the plan to the various DayBases, where DayJet parks a region's planes and crews for the night, and files the plan with the Federal Aviation Administration. The jets spend the day shuttling passengers among the company's DayPorts — DayJet's term for the airports it'll serve.

After 2007, the company plans to grow across the country. Iacobucci is convinced his system will hold up no matter how many cities or planes he adds — a heck of a statement, since each new city adds an order of magnitude of complexity.

"This is very different for the industry," he says with his oversized grin. More radical, certainly, than even a Trump Luxury Laundromat.

DISCUSSION

- ▶ Why is tech industry veteran Ed Iacobucci an unlikely person to start a new kind of airline?
- ▶ What is an "optimization problem"?
- ▶ How does the DayJet system work?
- ▶ To what population segment might this service appeal?
- ▶ Do you think DayJet will ultimately succeed or fail? Explain your reasoning.

ACTIVITY

In math, the “complexity theory” classifies problems based on how difficult they are to solve. Peruse today’s paper, and identify five problems facing our nation, business, government or individuals. Briefly describe each. Next, rank the problems from most to least difficult to solve. Finally, explain what variables compound each problem.

VOCABULARY

computational
gelatinize
improbable
optimization
probability
variables
Web-enabled

3

Problem	Rank	Variables