

# 5 Ways To Avoid Getting Hacked This Holiday

When it comes to online holiday shopping this year, one internet security team says computer infections could DOUBLE during the shopping season.

By **Bill Carmody** *Founder and CEO, Trepont* [@BillCarmody](#)



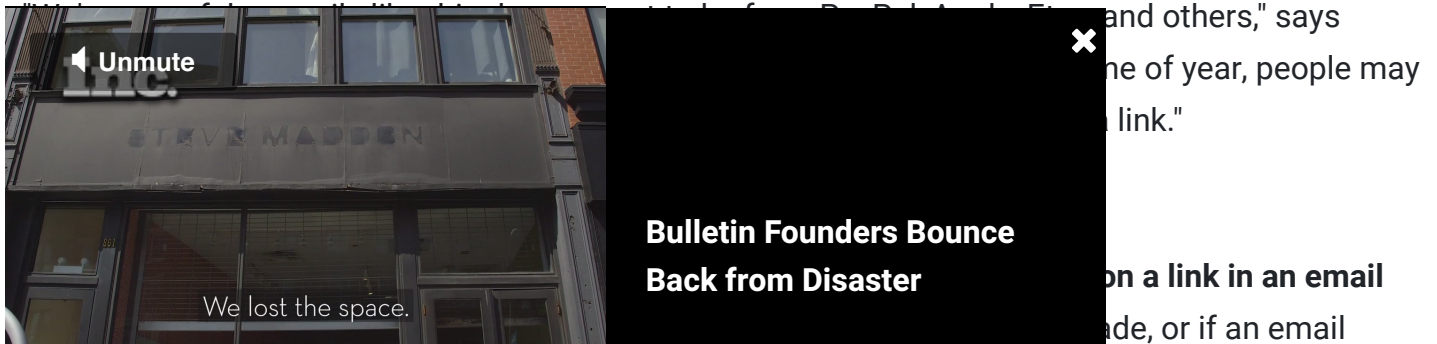
You might think that the busiest day for malware infections would be Cyber Monday, the first Monday following Thanksgiving when many online retailers have special sales. But in 2016, the busiest day was **Wednesday December 14<sup>th</sup>**, with infections 120.06% higher than normal.

November and December are typically very busy months for computer malware infections, and an increase in online holiday shopping is the most likely culprit. The National Retail Federation estimates that [online holiday sales will increase 11-15% this year](#). Every online click is an opportunity for cyber crooks to get harmful programs installed on your computer. And this year, even more sophisticated email phishing attacks could spell even more trouble; attacks that hack your computer by tricking you into thinking you've already been hacked.

## Black Friday Computer Infections Are On The Rise

[Enigma Software Group](#), makers of the SpyHunter anti-malware program, found that last year infections on its customer's computers *jumped 99.23% from Black Friday through Christmas*. That was a bigger spike than in 2015 (84%) and 2014 (42%). So that trend could continue and even spike higher online as holiday sales increase this year.

Alarming, more sophisticated email phishing attacks could trick many online shoppers as malware makers are preparing to steal data and money to unsuspecting or unprepared consumers. This year, newly designed email phishing attacks could spell even more trouble; attacks that hack a computer by tricking you into thinking you've already been hacked. In the past, phishing emails like this were easy to catch. They often had poor formatting and misspelled words. They just looked fake. But now these emails look very real.



looks legit but contains information on a purchase you didn't make, your best bet is to log directly into your Apple, Amazon, PayPal or other account directly from your web browser.

Here are some other tips from Enigma Software to keep your computer safe this holiday season and beyond.

1. Make sure your computer's operating system is up-to-date, and is scheduled to install updates automatically.
2. Have up-to-date security and anti-malware software (such as SpyHunter) installed and make sure to run frequent scans and updates.
3. Never click on links in suspicious or unsolicited emails. Sometimes, emails may appear to come from a legitimate source but are, in fact, spam and may contain malicious links.
4. Be wary of unfamiliar websites that ask you to install software before continuing with your shopping. Unwanted or unfamiliar sites may have malicious scripts or links.
5. Be cautious of links found in social media messages. Such links include those found on Twitter direct messages and messages sent to you via Facebook. Potentially malicious messages may look like they are coming from your friends, but there's a good chance their account has been compromised and cybercrooks are attempting to trick you.

According to Enigma Software Group, in 2016 the individual cities with the highest spike in malware infections during the holiday season were Kansas City, Salt Lake City, San Francisco, Raleigh, and Miami.

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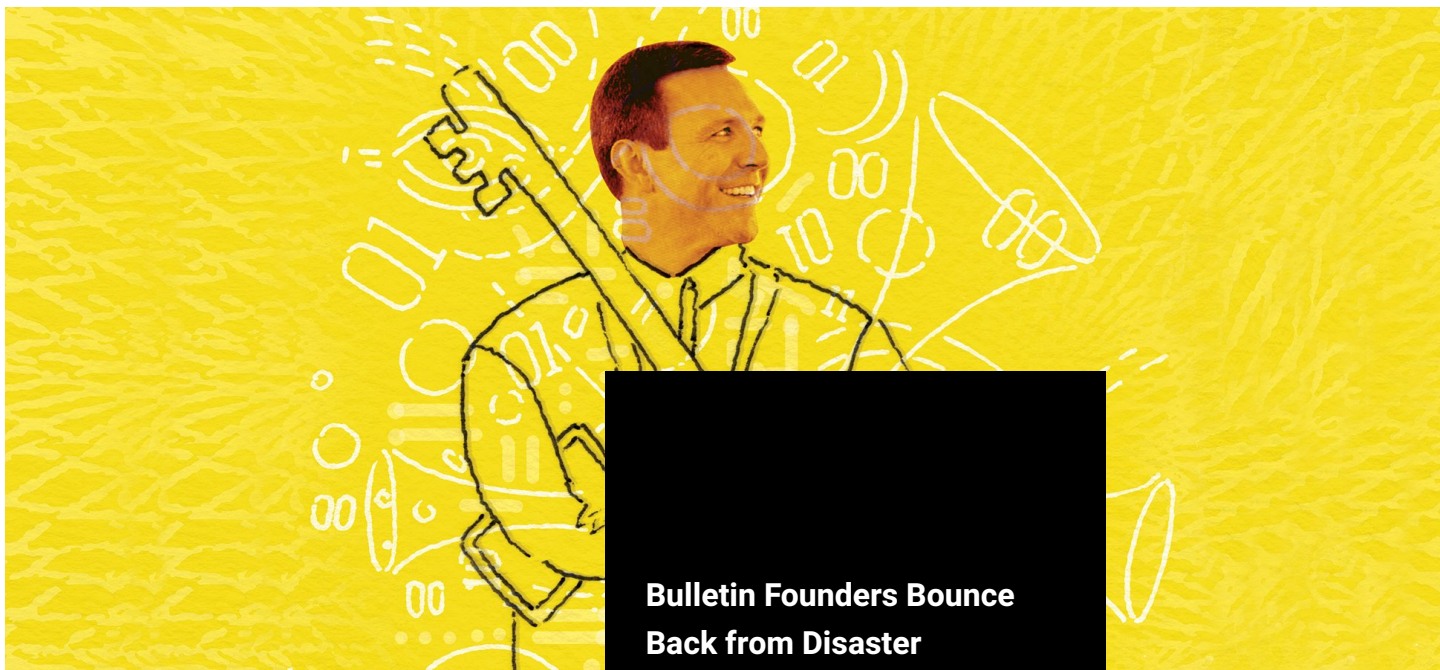
PUBLIC HEROES

# What It's Like to Take a Company Public--From 4 CEOs Who've Done It and Lived to Tell the Tale

Taking a company public invites all sorts of distractions, from demanding analysts to hostile investors. Meet four founders who've made that leap while staying true to their mission.

**By Kate Rockwood and Zoë Henry**





Inovalon founder Keith Dunleavy. CREDIT: Bill Mayer

A nerd-turned-MD is creating algorithms to deliver the overdue [digital health care revolution](#).

[Keith Dunleavy](#) was in the middle of preparing the holiday dinner last Thanksgiving when his 76-year-old mother realized that she was in dire need of a refill for her [Parkinson's](#) medication. Thin-voiced and frail, she pulled out her smartphone, put the call on speaker, and explained to the pharmacist that, though her previous [refill of the expensive drug](#) normally would have lasted to the end of the month, her doctor had tweaked the dosage. She needed a new prescription much sooner. Like, today. A national holiday, with no doctors sitting by the phone eager to answer pharmaceutical questions.

It wasn't a straightforward ask, but Dunleavy was struck by how much more difficult the 25-minute call might have been if not for the powerful but intuitive platform he knew the pharmacist was using, a platform that could pull up his mom's previous scripts, access data from previous treatments, and do a real-time analysis of potential drug interactions or side effects. Dunleavy could visualize exactly how the pharmacist was navigating the platform. Because he built it.

"I was watching care happen right in front of me, with the dog barking in the background and kids moving in and out of the kitchen," he says, "and it really brought to life this incredibly complex system that needs to work together to take care of this woman." And because Dunleavy is almost always in work mode, he couldn't help but note a few tweaks he wanted to make to the next upgrade so that similar scenarios would be even easier in the future.

You don't need to be the founder's mom to benefit from Inovalon's analytics. If you've enrolled in a health plan, visited a doctor, filled a script at the pharmacy, or used a medical device, there's a better than one in two chance that the Bowie, Maryland-based company has run your health info through its real-time algorithms. Inovalon counts hundreds of insurance companies, provider

systems, and pharma, device, and diagnostic companies as clients, including 19 of the top 25 health plans and 13 of the top 15 pharma and life sciences companies. It pools data on more than 240 million patients.

While its clients are household names--Walgreens, Medtronic, Merck, Anthem, Aetna, Blue Cross Blue Shield--none of them could do what Inovalon has done, which is build ways for massive data sets to talk to one another and develop predictive analytics that can drive better patient outcomes and lower medical costs.

For decades, our health care industry has been a fragmented system in which each of us has an electronic health care record that no one other than the provider has real-time access. Instead, issues such as the inability to share data have hindered progress. Meanwhile, U.S. health care costs continue to rise, up 16, a 4.3 percent bump over 2015. The Inovalon One Platform, as a massive cloud computing muscle is called, is transforming the tsunami of big data into something actionable and understandable.



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Today, a pharma manufacturer might use the platform to track not just side effects and drug interactions, but also how compliant patients are in taking their meds, as well as a drug's effectiveness compared with other options on the market. Doctors can look at a patient's electronic health care record--including trips to a physician's office, urgent care facility, or local CVS for a flu shot, hospital stays, and notes from a pharmacist--and know that all systems are actually communicating. Hospitals can flag patients who are juggling multiple chronic conditions and most likely to wind up back in the emergency room after a procedure--which could cost them Medicare penalties--so clinicians can proactively adjust care plans.

Dunleavy cites research showing that with predictive analytics in play, the average hospital stay drops by nearly a day, the number of ER visits declines by more than 20 percent, and complications from chronic conditions (such as infections and amputations) plummet.

For a brand that no one beyond the health care industry has heard of, Inovalon became a quiet behemoth before stepping onto the public stage. In 2015, looking to attract talent, to reach a broader variety of health care clients, and to access capital for big-budget acquisitions, Dunleavy took the company public. Inovalon raised just over \$600 million in its IPO, and last year recorded \$449 million in revenue. In March, the company announced a \$1.2 billion acquisition of the clinician-focused Ability Network, with the goal of getting its One Platform into more provider hands.

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Dunleavy never dreamed of being a doctor. As a geeky, code-all-night teen, he was more obsessed with robotics and computer science than with flesh-and-blood patients. He studied neuroscience and engineering at Dartmouth, footing the tuition by taking on every programming gig that came his way and, with a classmate, launching a small computer company from his campus apartment. For his honors thesis, he developed a system that could simulate the way the human brain works in order to, someday, power robotic limbs.


But when a professor mentioned that if he stuck with computer neuro-enhancements and artificial limbs, it would be a physician who would one day implant his design, Dunleavy chose to go to med school. "I was fascinated by the whole process, which led to my saying I needed to do that part also," he says.

That unflagging work ethic and ambition carried through his time at Harvard Medical School, where he earned a degree while also programming AI software for Merck. "They were willing to pay for all the hours I was willing to work, and I thought that was fantastic, because I was willing to work around the clock," he says. "I worked my heart out."

Even in a sea of cutthroat residents, Dunleavy stood out: At Johns Hopkins, he and other residents would track the number of patients admitted and discharged during each of their brutal, multiday shifts. Any resident who could clear his or her entire docket would crow about "winning the game." "It was very rewarding, and I took it on as a challenge," he says.

As he was besting other residents, Dunleavy quickly saw how many elements were beyond his control: setting up social services, coordinating in-home care, arranging for translators. Once, frustrated that a barefoot patient's discharge was dragging, Dunleavy jogged down to a nearby store and bought him a pair of shoes. "Winning the game!" Dunleavy says, grinning at the victory two decades later.

Being a physician was rewarding, but when Dunleavy came to understand its limitations, he faced a decision: "I truly loved seeing patients. I ultimately came to the conclusion, however, that I could



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*CREDIT: Bill Mayer*

impact more patients by developing data-driven health care solutions for millions of patients than by seeing them personally one by one."

By all accounts, Inovalon's early years were a slog--crunching medical data, tracking compliance for insurance companies and state health agencies. Massing that data, Dunleavy began building out a system that could predict a patient's progress and ultimately improve outcomes. Dunleavy worked for years before making his first hire, and even then expected his staff to have the same relentless focus that he did.

Dan Rizzo, Inovalon's Innovation Fellow and a former senior advisor to the White House (with 3,000-plus), remembers working on a client presentation for a major insurer in labor. "Keith would never ask you to do something he wouldn't do himself. He's the hardest-working person you'll ever meet," Rizzo says. In 2003, with the passage of the Medicare Modernization Act--the last major piece of legislation in its nearly 40-year history.

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Insurance companies saw that individual member data would be necessary not just for proving compliance but also as a key measure of quality and reimbursement, he says. Soon, Medicaid was looking at similar quality metrics. All of this has been part of an industry shift away from volume-based health care--getting paid for services, such as how many tests you perform--and toward value-based health care--getting paid to proactively keep patients healthy.

"Folks have always collected data, but with the move from volume-based to value-based outcomes, you have to gather a lot more information from a lot more sources," says Mark Lorence, a health care analytics expert at PA Consulting. "Instead of just collecting lagging data, like how many diabetes patients you saw last quarter, now you need to bring together all sorts of metrics and measures and use them to create predictive models." For instance, is a patient's medical condition likely to get worse or better? Which of the available health care resources within a geographical area will produce the best results for a specific patient? And more broadly, what's the best way for the health care system to interact with a patient to produce better results?

Inovalon's ability to do advanced data aggregation and analytics was an easy sell for insurance companies struggling to make sense of messy data silos. But to chase market dominance, Dunleavy needed outside capital. In 2008, André Hoffmann, vice chair at Roche Holdings and an early investor, doubled down and bought 15 percent of the company from shareholders. The funding would allow Inovalon to better manage the growth Dunleavy envisioned, as well as let early investors and employees cash out. As Inovalon grew, so did the data set, says Rizzo, which in turn made it easier to get new clients on board because they could leverage richer insights with greater confidence and anonymity.

Undaunted by med school, programming for Merck, or making life-or-death decisions as a resident, Dunleavy found the IPO process stressful. "When you go public, there are all these people you want



to feel a responsibility to, but you don't even know who they are. And they're judging whether they agree with what you're doing on a minute-by-minute basis," he says. "It's a strange experience."

Inovalon's first-year performance was ho-hum, and in mid-2016, some class action law firms sued, because that's what they do. "Whenever the stock goes down, the jackals come out," says James Angel, an associate professor at the Georgetown University McDonough School of Business.

Inovalon has since reclaimed its stride. In the last quarter of 2017, sales increased 19 percent year-over-year, and the Ability Network acquisition is a key part of its strategy. Inovalon is building a single platform with the Ability Network of more than 44,000 providers to connect the entire health care ecosystem—payers, manufacturers, diagnostic companies, and providers—to the patient's point of service—to deliver real-time, value-based health care. Inovalon has built works best when every part of a patient's health is connected.

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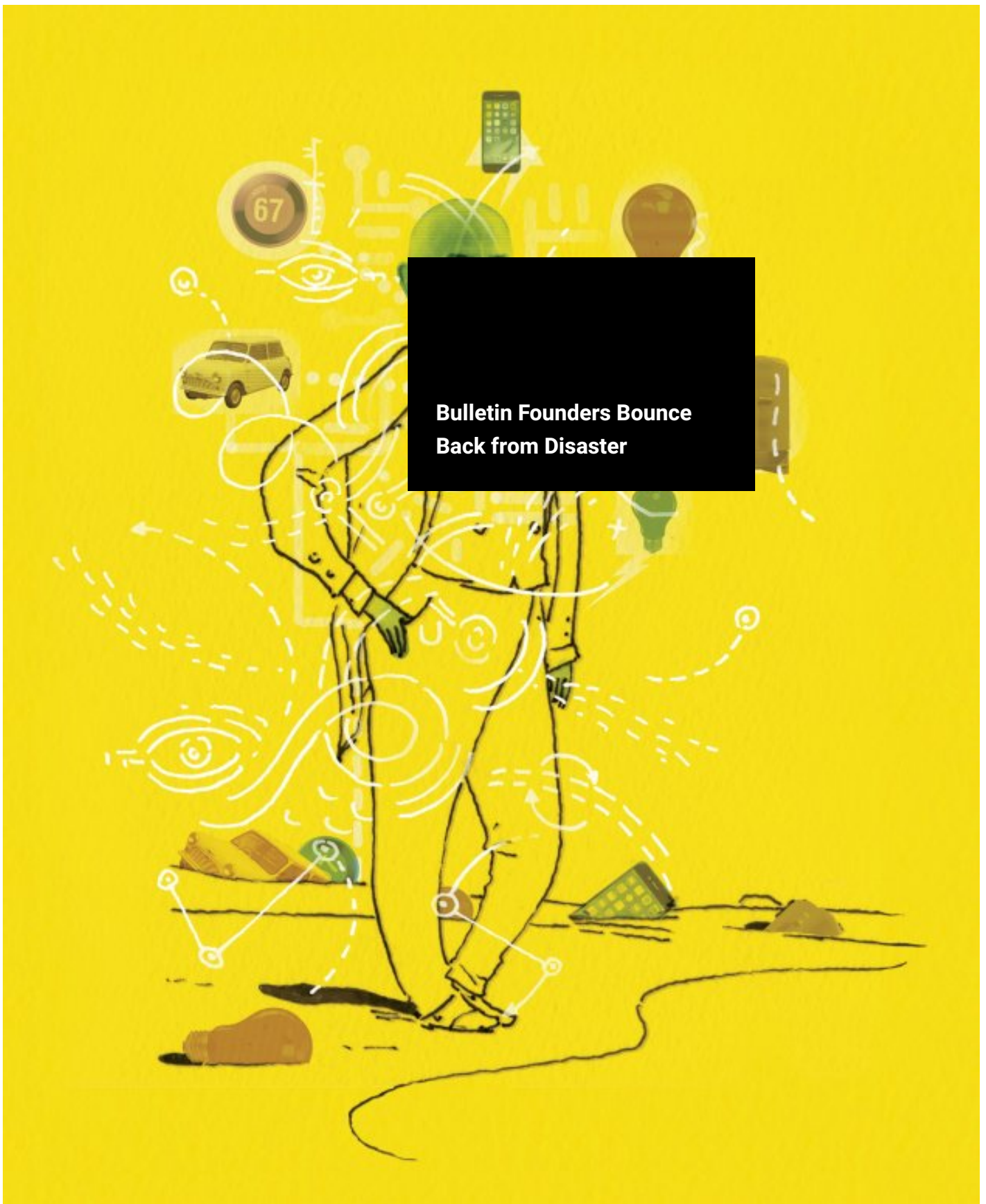
**Gin, tonic, perspective: His IPO was a dud, but his company is flourishing.**

### **Adesto Technologies**

IPO: **October 2015** | 2017 Revenue: **\$56.1 million** | Profit: **\$1.3 million**

Narbeh Derhacobian, the co-founder and CEO of chipmaker Adesto Technologies, wasn't prepared for the valuation his company got after he took it public in October 2015: about \$60 million, after raising only \$25 million. That was half what investors believed Adesto would fetch. "That particular week was the worst time to go public," he says. On the flight home, Derhacobian recalls, he applied several gin and tonics to mitigate his depression.

Nevertheless, Derhacobian says, going public was the right move. Adesto powers the internet of things. Its long-lasting, low-energy-consuming semiconductors run everything from glucose monitors to smart home sensors. But Derhacobian had been in dire need of a cash infusion to invest in sales and marketing to grow the business. "It was still a time that private equity money



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Adesto Technologies co-founder and CEO Narbeh Derhacobian. *CREDIT: Bill Mayer*

going to chip companies was very rare," he says. Meanwhile, his institutional investors—from whom he'd raised some \$60 million over nearly a decade—were hungry for an exit.

Adesto rebounded. The company is now growing revenue by 30 percent annually and has turned profitable. It generated \$56 million in 2017 sales, an increase of more than 27 percent. The

experience taught the founder an important lesson: Keep losses in perspective, and measure progress against the past. --Z.H.

## **A woman with a cause and a company--and zero sales--is on a quest for a cure.**

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### **Clementia**

IPO: **August 2017** | 2017 Revenue: **\$0** | Loss: **\$115.5 million**

When Clarissa Desjardins first learned of fibrodysplasia ossificans progressiva--a rare disease that causes children's muscles to turn to bone--she had to act. A serial biotechnology entrepreneur in Montreal, Desjardins began experimenting with a new drug. Between 2011 and 2015, she hired a team of cutting-edge researchers to perform tests, and tapped the local investment community to raise \$83.5 million. "I couldn't believe such a disease existed. It caused me to quit my job and change my life," she says, referring to what would be her third biotech company, Clementia.

When it became clear that the drug had enough potential for a Phase 3 clinical trial--the last step before approval from regulators like the U.S. Food and Drug Administration--Desjardins looked to an IPO for financing. "We had to access the public markets to enable us to fulfill our mission," she says. So, in August 2017, the company--which counts 35 employees and, yes, zero revenue--went public, raising \$138 million.

There's no guarantee that her drug will be approved--and the clinical trial results won't be available for another two years, an eternity for investors. "I can understand how, as compared with other industries, this feels a bit unreal," she says of the uncertainty that shrouds her company. "But we have patents, people, and trade secrets, all of which are transferable in situations of distress." --Z.H.

## **He found an angle on oil drilling and created an urban fracking firm.**



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Clementia founder Clarissa Desjardins. *CREDIT: Bill Mayer*



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**EO&G**

IPO: **October 2016** | 2017 Revenue: **\$604 million** | Loss: **\$44.4 million**

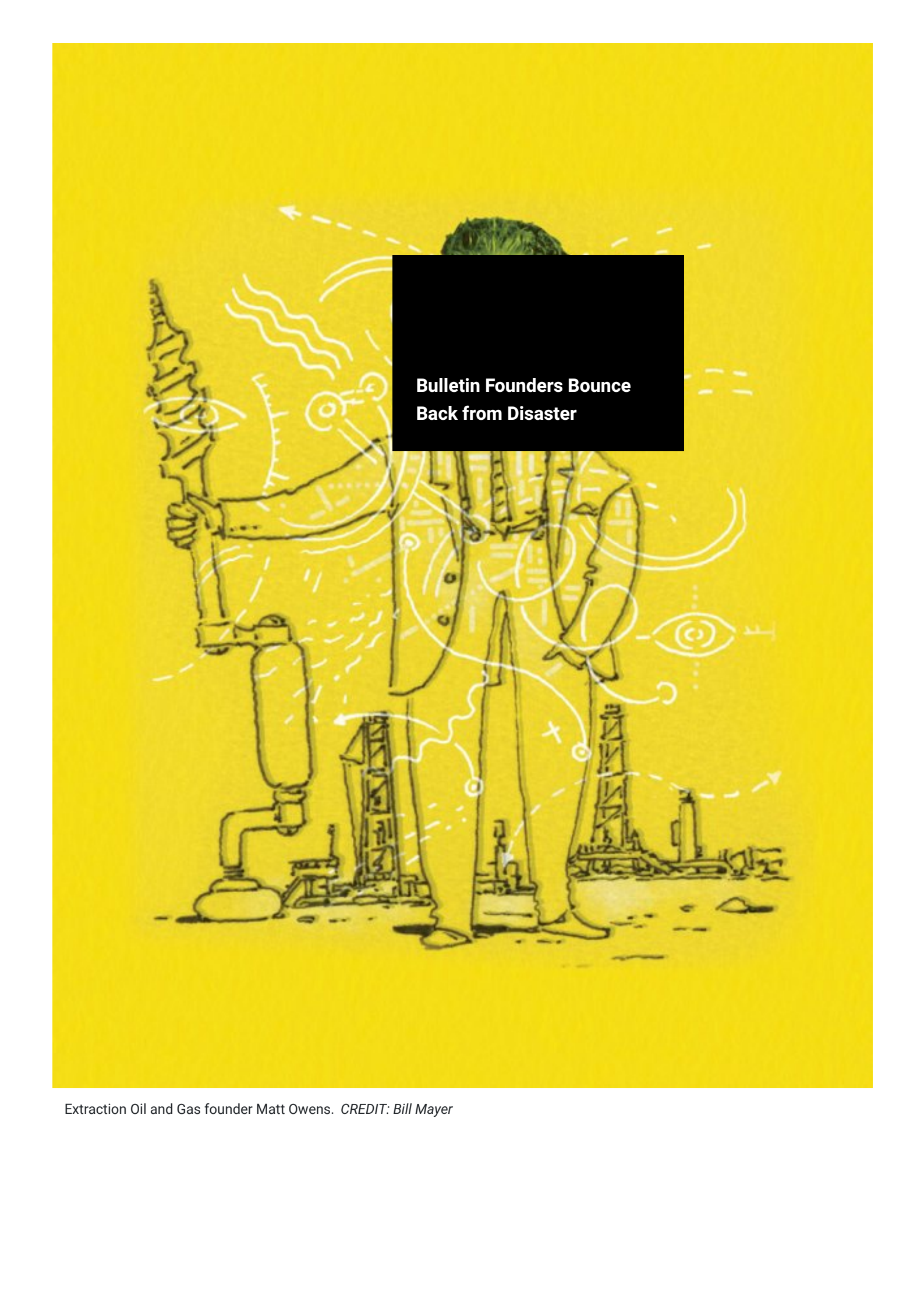
At 26, Matt Owens dreamed of gathering hard-to-reach hydrocarbons buried in the earth. At the time, most oil firms drilled vertical wells, but Owens had improved a technology that lets operators steer their drill bits horizontally, minimizing surface impact while reaching new areas. So he launched his own company, Extraction Oil and Gas, in Denver, in 2013. In addition to improving horizontal wells, Owens made the risky decision to frack near urban centers, rather than in swaths of back country; this allowed him to tap electrical grids, as opposed to using loud, diesel-burning generators. His oil rigs run quietly.

Before too long, though, he was running out of cash. Reason: "In oil and gas, you actually have to spend money to make the money," Owens says. An IPO would be the most efficient path to funding.

His timing could not have been worse. Between 2013 and 2016, the price of oil plummeted from \$100 a barrel to around \$35. His company went through the filing process for 20 months, he says, waiting for the market to rebound. To keep going, the company figured out how to cut drilling costs from nearly \$5 million a well to about \$2.5 million.

The strategy paid off. In October 2016, the company raised \$630 million, valuing it at more than \$2 billion. "It was a lot of blood, sweat, and tears, being the first oil company to go public in almost two years," says Owens. In 2017, Extraction Oil and Gas generated more than \$600 million in revenue, and it is on track to turn a profit. --Z.H.





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Extraction Oil and Gas founder Matt Owens. *CREDIT: Bill Mayer*

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