

THE RAFFLES CONVERSATION

FLASH  
FORWARD

Despite Covid-19, 2020 has started off on a positive note for Pure Storage, with its flash-based storage products ready for mainstream usage, says CEO Charles Giancarlo. **BY AMIT ROY CHOUDHURY**

**C**HARLES Giancarlo, chief executive officer (CEO) of Pure Storage, which develops hardware and software used by data centre operators and enterprise customers, has over his long career faced and overcome several hurdles. But none of his past experiences prepared him for the twin challenges of segueing his employees to a remote working environment due to the novel coronavirus pandemic while he himself became one of the early victims of Covid-19.

Mr Giancarlo and his team were busy transiting the some-3,500 Puritans (the internal nickname for Pure Storage staff) around the world to remote working protocols in March when he developed fever and symptoms associated with the Covid-19 infection.

"It turned out to be a full-blown infection and I had fever for 12 days," he recalls. Despite that, he was able to work for the first seven or eight days. "I held video conferences with my colleagues while I had fever and the nights were horrible," recalls Mr Giancarlo, who has since fully recovered.

Describing his ordeal, the Pure Storage CEO notes that he avoided going to a hospital. "I had fever, backache, headache, and night sweats. But I never once coughed or sneezed during the entire illness and, oddly, I never really felt like I had shortness of breath", he adds.

Mr Giancarlo is fortunate to have recovered fairly quickly but the infection remains an ordeal that he will remember for a long time. "The level of fatigue that I felt for weeks afterwards was like nothing I've ever felt before; it was a very, very serious type of fatigue," he says.

**Storage solutions**

Pure Storage develops storage products and solutions based on what is called flash storage, the type that is used in smartphones and increasingly in computers, especially laptops. Flash is overwhelmingly used in gadgets and less in large servers which store humongous amounts of enterprise data. Large capacity servers in data centres use the more traditional and cheaper hard disk drives (HDDs) and magnetic tape-based storage products.

Flash storage drives have many advantages over HDD and tape-based systems. They take less space, require less power and cooling, and usually work much faster. However, cost has been, till now, a big inhibitor to mass scale adoption of flash storage by enterprises.

Companies like Pure Storage, as Mr Giancarlo explains later, are working to bring down the



PHOTO: PURE STORAGE

cost of per unit storage on flash drives to a level where it makes economic sense for their large-scale use in enterprise settings.

Prices are falling, and Pure Storage is reaping the benefits. In its first quarter, which was from February to April, the company saw revenue grow by 12 per cent and a 24 per cent increase in overall bookings.

Despite his illness, the first quarter brought good cheer to Mr Giancarlo, thanks to Pure Storage's heartening results. "While some companies did postpone buying decisions (during the quarter) due to Covid-19, others needed to add capabilities quickly to deal with the virus. That allowed us to have a very good performance in Q1 and we had a very strong and resilient sup-

ply chain and ability to support our customers. It worked out well for us," he says.

The CEO adds that Pure Storage is constantly undertaking research and development (R&D) that is helping to make its products and services better and cheaper. "We'll invest about 18 per cent of our revenue in R&D this year, so that we continue to lead the market in innovation. We have announced some great new capabilities, including file services on our FlashArray product, in addition to data resiliency, on both our FlashArray and FlashBlade products. And we're seeing great growth in both areas."

Mr Giancarlo is back at work and our interview, given the current situation, is over video conferencing, something he has been doing for

several hours each day, from his home in Mountain View, California in the US.

Asked if he thinks remote working and social distancing are here to stay, even after the pandemic is over, the Pure Storage CEO reckons that telecommuting will be more prevalent than it has been in the past.

"You know, there may be some people that decide they never want to go back into a workplace. There will be companies which will decide that they don't want to house 100 per cent of their people inside offices anymore.

"And there'll be other businesses that say, you know, we don't need to be entirely within one city or one country; we can be much more spread out," Mr Giancarlo says.

At the same time, he adds: "People are social animals and they want to get together.

"I'm a very avid reader, and I've been reading many books about the 1918 Spanish flu, which was devastating, with estimates putting the number of deaths at between 50 to 100 million people worldwide, a figure that is more than the deaths in all the wars put together. And I have to remind people that right after the 1918 Spanish flu came the Roaring 20s."

The Roaring 20s, or 1920s, was a decade of unprecedented growth and social change, mainly in the United States. For the first time more Americans lived in cities than on farms, and the country's wealth more than doubled from 1920 to 1929.

"I don't think the Roaring 20s is just a coincidence. When you survive through a near-death experience, people live as if they're at the end of the world. It's a devil-may-care attitude, and I think that we'll see some of that in our 20s going forward – that is, in our own 2020s," Mr Giancarlo predicts.

**Taking a position**

The Pure Storage CEO isn't afraid to speak his mind or take a position even on contentious issues. Our interview took place during the period immediately following the unrest across the US in the aftermath of the death of George Floyd, who was arrested by police outside a shop in Minneapolis, Minnesota.

Mr Giancarlo is among a number of technology company CEOs who spoke up against violence. "It is time to build a society that can move beyond the violence minorities face to build opportunities for all citizens," he wrote in a LinkedIn post following the incident.

Mr Giancarlo feels that CEOs like himself "need to be vocal on what we believe in; that is, we need to build fair and equal societies".

He adds: "I think the more vocal we are, the more it'll be taken as mainstream. We can't allow prejudice or prejudicial voices to be at the forefront and unfortunately, with social media, anyone and everyone has a megaphone. But we can't allow the voices of discrimination, of distancing, of hate, of division, to be the loudest voices. We need to make sure that the voices of calm and of fairness, and of equal opportunity, are ultimately the voices that carry sway."

Mr Giancarlo passionately believes that the need of the hour is a kinder and gentler world. "If you follow the media you see there is a lot of focus on argument. And there's a lot of disagreement and yelling that take place and the display of lots of anger. I don't think anger solves problems; instead, determination solves a lot of problems – determination can be quiet, it doesn't have to be angry, it just has to be persistent.

"And to call out just two very clear examples

of that are Martin Luther King and Mahatma Gandhi. You've never seen them angry; you've seen them determined, and I think there needs to be more coverage of that type of behaviour because anger just begets more anger and violence begets more violence. What we need is calmer and deliberate focus to solve problems," says Mr Giancarlo.

The Pure Storage CEO adds that in the age of social media, there is a need in the US and worldwide to distinguish between free speech and what is just hate-mongering. "You have bots, purposefully created a lot of times by outside forces, that create a huge challenge. And there are proxy wars going on all over in every country created by outside forces and I don't mean to be conspiratorial, but effectively there's a lot of experimentation that's going on in social media right now, both for good and ill, and that is creating challenges for societies worldwide."

Our conversation veers back to Pure Storage and its proposition of providing flash storage as an alternative to more traditional HDD-based storage. At the moment, the flash storage works out to be costlier than more traditional HDD or tape-based storage. However, Mr Giancarlo feels that the trend is changing.

"I'm a big believer in, and have been studying, exponential curves of technological progress for many years. They are great predictors of the future, maybe not next quarter, but further down. When you see improvement in price performance of a technology year after year, it tends to continue.

"And so, if you were to follow flash pricing per bit (the basic unit of storage), versus magnetic pricing per bit and study it over the last 20 years, what you find is that flash pricing per bit is decreasing at a faster rate than magnetic pricing per bit. Because of that, you could almost plot out, five years from now and say, where will we be in terms of flash as compared to magnetic (tape).

"Flash, when we first came out with it eight years ago, could only hope to be used in the highest performance of primary tier applications. It's now 30 per cent of the overall market in storage and growing," says Mr Giancarlo.

He adds that Pure Storage's new product – the FlashArray C – competes with traditional hybrid disk arrays in the more price-conscious secondary storage market. Going forward, Pure Storage products will get cheaper and will be able to penetrate more into the tier-three of the storage market where magnetic tape is still used, he believes.

In his long career, which started in 1980, Mr Giancarlo has been both a successful entrepreneur as well as tech leader in established companies. To a question on what he thinks has changed in the technology industry over the decades, he offers a very interesting perspective through personal anecdotes.

**More awareness**

"It (the industry) has become a part of the popular perception. Back then, I can tell you that for many years nobody understood what I did. My mother didn't understand what I did, my wife didn't understand what I did.

"I remember quite vividly, a conversation with one of my extended family, a brother-in-law of one of my brothers, who literally is a nuclear physicist, a fusion physicist at Princeton. And we were talking at the time and both of us were young, in our 20s. He was telling me what he did and I found it interesting because I was fascinated by lasers and plasma and all of that.

"And he asked me, of course, what I did, and

THE RAFFLES CONVERSATION

**CHARLES  
GIANCARLO  
CEO & Chairman  
Pure Storage**

1957: Born in New Jersey, USA

**EDUCATION**

1975-1979: BS, Engineering, Brown University  
1979-1980: MSEE, Electrical Engineering, University of California, Berkeley  
1982-1984: MBA, Business, Harvard Business School

**CAREER HIGHLIGHTS**

1980-1982: Engineer, Infineon (previously under Siemens)  
1984-1988: CEO & Co-founder, Telecom Systems, Inc  
1988-1993: Co-founder, VP Products & Development, Adaptive Corporation  
1993-1994: VP Products & Corporate Development, Kalpana (acquired by Cisco)  
1993-2007: EVP, CTO & CDO, Cisco Systems  
2008-2009: Interim CEO, Avaya  
2008-2013: Managing Director, Silver Lake Partners  
2014-2015: Senior Advisor, Silver Lake Partners  
Since 2017: CEO & Chairman, Pure Storage

there wasn't really a good word for it. But I said: 'I'm working in communications on enabling computers to talk to each other'.

"Decades later, he told me that after that conversation, he went home and told his wife, 'I don't know why computers would need to talk to each other. I'm a little bit worried about Charlie'," Mr Giancarlo recalls with a smile.

He continues: "These days, tech is much more obviously in the vernacular. And it's more in the mainstream. And that certainly helps. I would say it's more approachable by everybody. You know that's a very big difference."

**Changes in development**

While the perception has changed dramatically, the way technology is developed has also been transformed, Mr Giancarlo adds.

"In terms of developing technology, the one big difference is that we've gone from where the focus has been on the hard science – semiconductor engineering, fundamental computer engineering, designing chips, designing fundamental, in my case, communication systems – to the popular punching bag, social media. It's software for consumers, where the design part of it from usability is very important, but it's not the hard science.

"I do worry a little bit about, in our case, US competitiveness, because I think that the fun thing for the hard science has been reduced on a relative basis from a venture capital perspective. And it's much more on the, let's call it the 'get-rich-quick' social network side of things. I think it will eventually flow back, by the way, because once that's (social media) exhausted, you have to go back to the hard science. But that has been a big change going from the hard science to more of the social and popular aspects," Mr Giancarlo says.

The Pure Storage CEO agrees that there is an inherent bias in market valuations where companies pursuing difficult hard tech problems are less rewarded than companies that are more consumer-focused and have strong social media assets.

"It (the market) honestly doesn't reward hard work. It rewards monopolistic rents, let's be real, right? And the social companies tend to have an advantage, because there's what's been called the network effect, which is, once you have a significant number of people on a platform, then the next person that joins would rather join that platform.

"So, there's natural monopolistic tendencies in that area, which is natural and I'm not accusing anyone of bad practices. But that tends not to happen in the hard tech areas, although, sometimes it does and Intel (whose chips are used by a vast array of computer makers) is a good example of that. But in other areas, it doesn't. It's just the way the world works. Fortunately, there are people that enjoy the challenge of these hard tech areas and work hard to allow them to grow," Mr Giancarlo adds.

The Pure Storage CEO, who loves to cook and prides himself on his culinary skills, is also fascinated by history, especially ancient history. But his true passion is skiing. "I live to ski. If I could I would ski every month, but we only get about two or three months a year out here to do that. So yeah, that's my real weakness, skiing: I have literally skied every year for 50 years now," says Mr Giancarlo.

With everything that has gone on in the year thus far, including fairly good tidings for his company, his hope now is that the novel coronavirus does not rob him of a chance to ski in 2020.

////////////////////