



priceline[®]

Data-driven dealmakers of travel

DIGITAL REPORT 2021

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Data-driven dealmakers of travel



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Priceline the pioneers of the ultimate travel deal, with their customer-centric platform

We all love a deal. US-based Priceline is renowned for being the ultimate travel dealmaker and having a customer-centric platform.

“Priceline is the best travel dealmaker in the world,” said Martin Brodbeck, Chief Technology Officer who points out the online travel company has invested time during the pandemic transforming its digital platform.

“Priceline is a data-driven company and we use this data to listen to what our customers want, and rapidly adapt to any changing dynamic in the marketplace as has happened during the pandemic.” Speaking from New York, Brodbeck says the travel landscape has changed in the US since Covid-19 with more citizens focusing on domestic travel rather than outbound vacations to other parts of the world.

But there is one thing that hasn't changed, everyone wants a deal. Priceline founder Jay Walker recognised this back in 1997 at a time when US airlines regularly flew two-thirds full, with millions of seats empty and a million hotel rooms unused every night.

Walker was also one of the first in the travel industry to recognise the business potential of the internet. His idea was to harness the internet to drive demand to fill planes and hotels by asking Priceline customers to make an offer – name their own price - rather than pay the full fare.

Another of his inspired ideas was to invite Captain Kirk (aka William Shatner) from Star Trek to become the ambassador for Priceline. He became known as ‘The Negotiator’ and was



PRICELINE

so impressed by the e-commerce start-up he agreed to be partially compensated with stock. The company launch was so successful that their two servers crashed immediately as so many people wanted to name their price. Priceline was born.

More than 20 years later, Shatner may have been replaced by actress Kaley Cuoco, known for her role in *The Flight Attendant*, but Priceline, part of Booking Holdings, continues to focus on the customer to offer the very best deals available on hotel rooms, flights, rental cars, vacation packages and cruises.

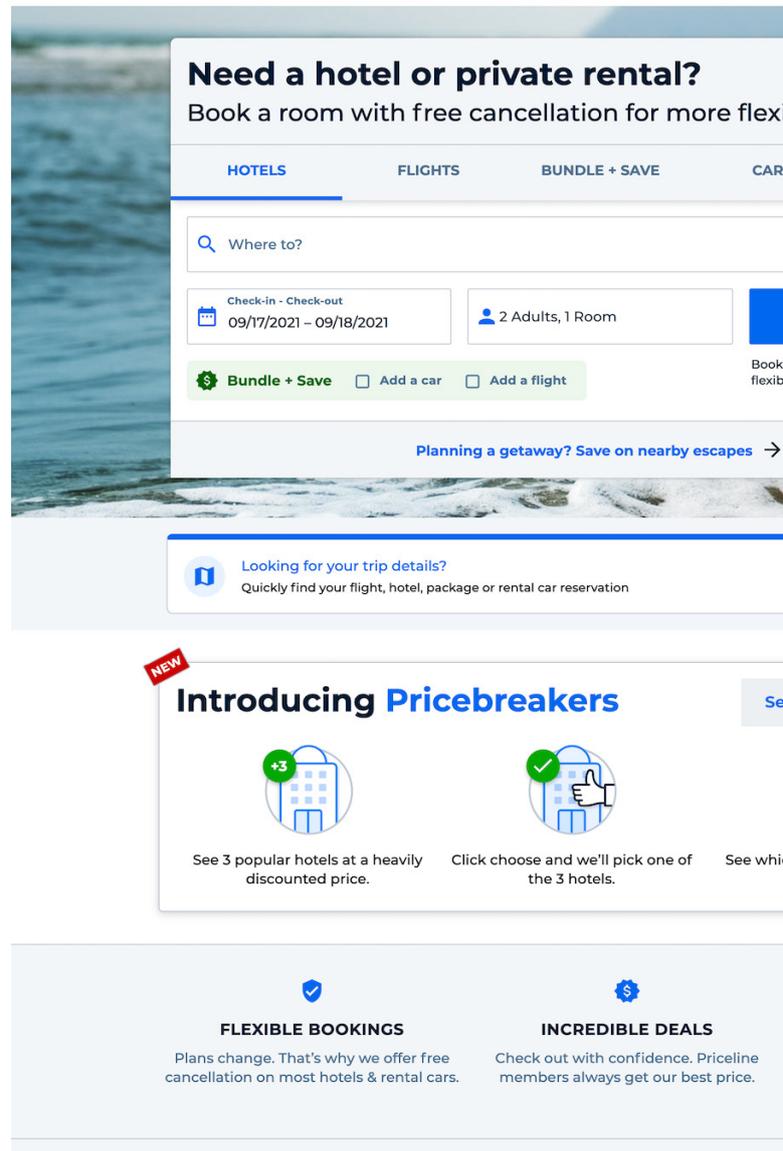
“Americans love to travel, but since the pandemic we are seeing more focus on domestic travel, whether it's a road trip and staying in a hotel, or going to a beach within the US,” said Brodbeck.

“Through our technology platform and our analytics we quickly saw a shift from people booking flights to road trips. Once we saw that data we started providing travel products and discounts that bundled rental cars and hotels together. We also developed specific features where users could find the nearest rental car based on their location and bundle it with a hotel to get greater discounts.”

Brodbeck, who previously worked for Pfizer, joined Priceline just before the pandemic and is shaping its digital roadmap. He pointed out how Priceline is using technology to turn the tide to bring affordable travel back to consumers with the use of product development and a multiservice digital payment platform.

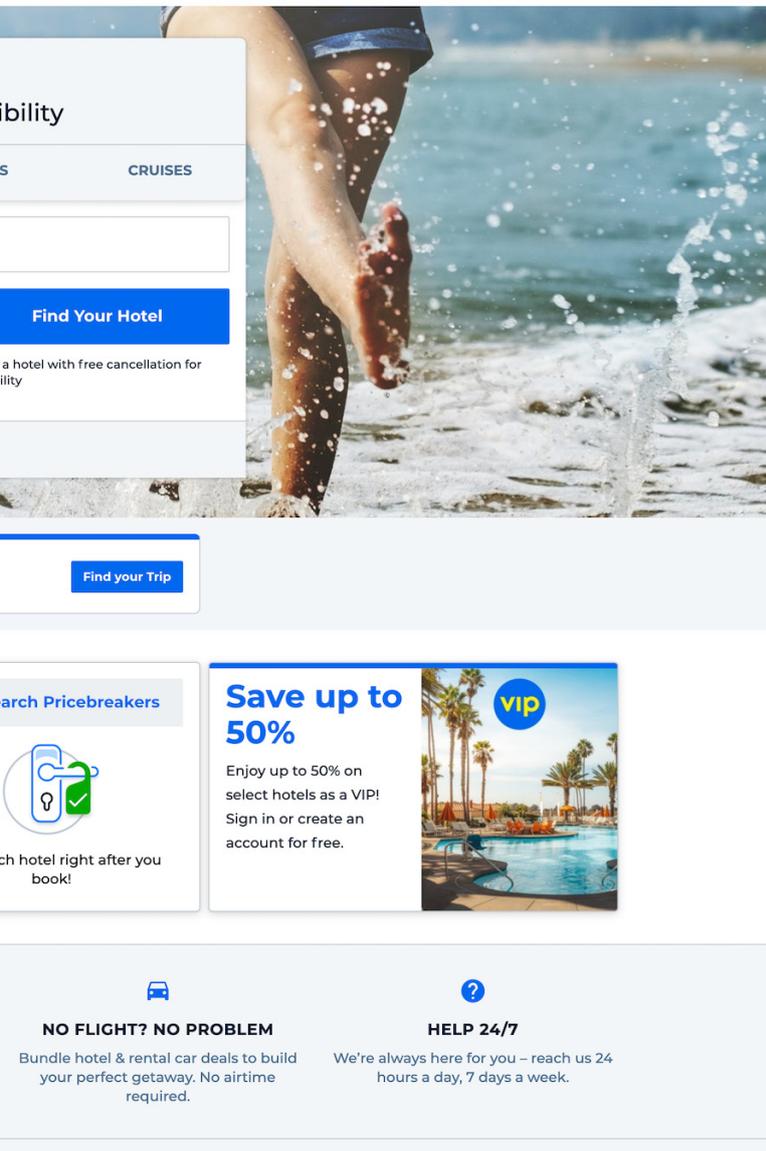
“Navigating the challenges of the pandemic has been a great learning experience for me because it accelerated a lot of the things that we wanted to do as a company and created an opportunity for us to collaborate on a global level,” he said.

Brodbeck is responsible for product engineering, data analytics, machine learning



“Although Priceline is a travel company, we are essentially a technology company at heart. More than half of the company is made up of great product and engineering talent”

MARTIN BRODBECK
CHIEF TECHNOLOGY OFFICER,
PRICELINE



MARTIN BRODBECK



TITLE: CHIEF TECHNOLOGY OFFICER

COMPANY: PRICELINE



Martin (Marty) Brodbeck joined Priceline as Chief Technology Officer in 2019. He is responsible for all product engineering, infrastructure and technology operations.

Brockbeck brings more than 20 years experience to Priceline, having led technology teams within the digital commerce, financial, pharmaceutical, biotechnology, consumer products, and media industries.

During his career, he has led companies through mobile, cloud, big data, cyber security, infrastructure, content and product engineering changes that have driven new revenue, cost savings and productivity gains across enterprise companies.

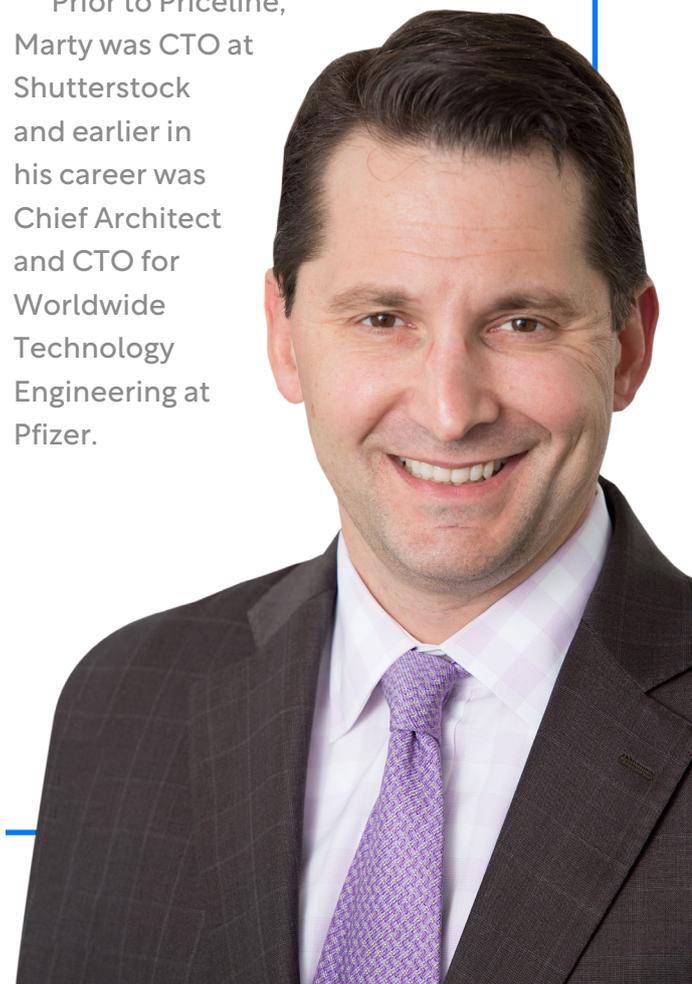
Prior to Priceline, Marty was CTO at Shutterstock and earlier in his career was Chief Architect and CTO for Worldwide Technology Engineering at Pfizer.

(ML), infrastructure and operations at Priceline and since joining has been working “to innovate and invest” in the future with his agile development plan. “We provide a technology platform that offers the best deals across many different travel products, including flights, hotels, rental cars, cruises and packages.

“Although Priceline is a travel company, we are essentially a technology company at heart, where more than half of the company is made up of great product and engineering talent.

“We have six different offices worldwide from an engineering perspective and the pandemic enabled us to accelerate how we do agile development at scale across those locations in Winnipeg, Toronto, Mumbai, Berlin, New York, and Norwalk in Connecticut.”

EXECUTIVE BIO





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Priceline Bolsters its Bookings with Big Data and DataStax

For more than 20 years, Priceline has helped consumers find great travel deals. The company negotiates deep discounts with hotel, airline, and car rental partners, saving travelers a billion dollars each year off standard published rates. Priceline's guiding operating principle is simple: once you can provide a smooth booking process and customer service, price is the most important factor in travel purchase decisions.

To enhance the company's capabilities around these fundamentals, Martin Brodbeck, CTO, Priceline, is leading the firm's digital transformation with a focus on accelerating and enriching data. By developing smarter big data strategies, Priceline's goal is to deliver more value to customers, capitalize on the explosive growth of e-commerce and increase its market share. With its VIP loyalty program, for example, the company can promote increased travel frequency among its customer base by making it cheaper and easier than ever, in addition to offering targeted, irresistible deals that speak to each customer's unique wants and needs.

Faster, Frictionless Travel Purchases

"The more we can increase relevancy and reduce friction for consumers during the travel exploration and purchase process, the higher our conversion, retention, and revenues," says Brodbeck.

Priceline has been relying on [DataStax Enterprise](#), built on the open source [Apache Cassandra](#)® database, to help customers quickly search offers from thousands of travel partners and lock in low prices. The solution captures real-time customer events along with historical data on bookings and searches. Priceline's machine learning algorithms can use this massive data trove for more valuable customer insights, greater personalization, and better travel recommendations.

"Having a very high-powered, low-latency, high-throughput, scalable architecture for real-time data is paramount, and that's why we use DataStax."

—Martin Brodbeck, CTO, Priceline

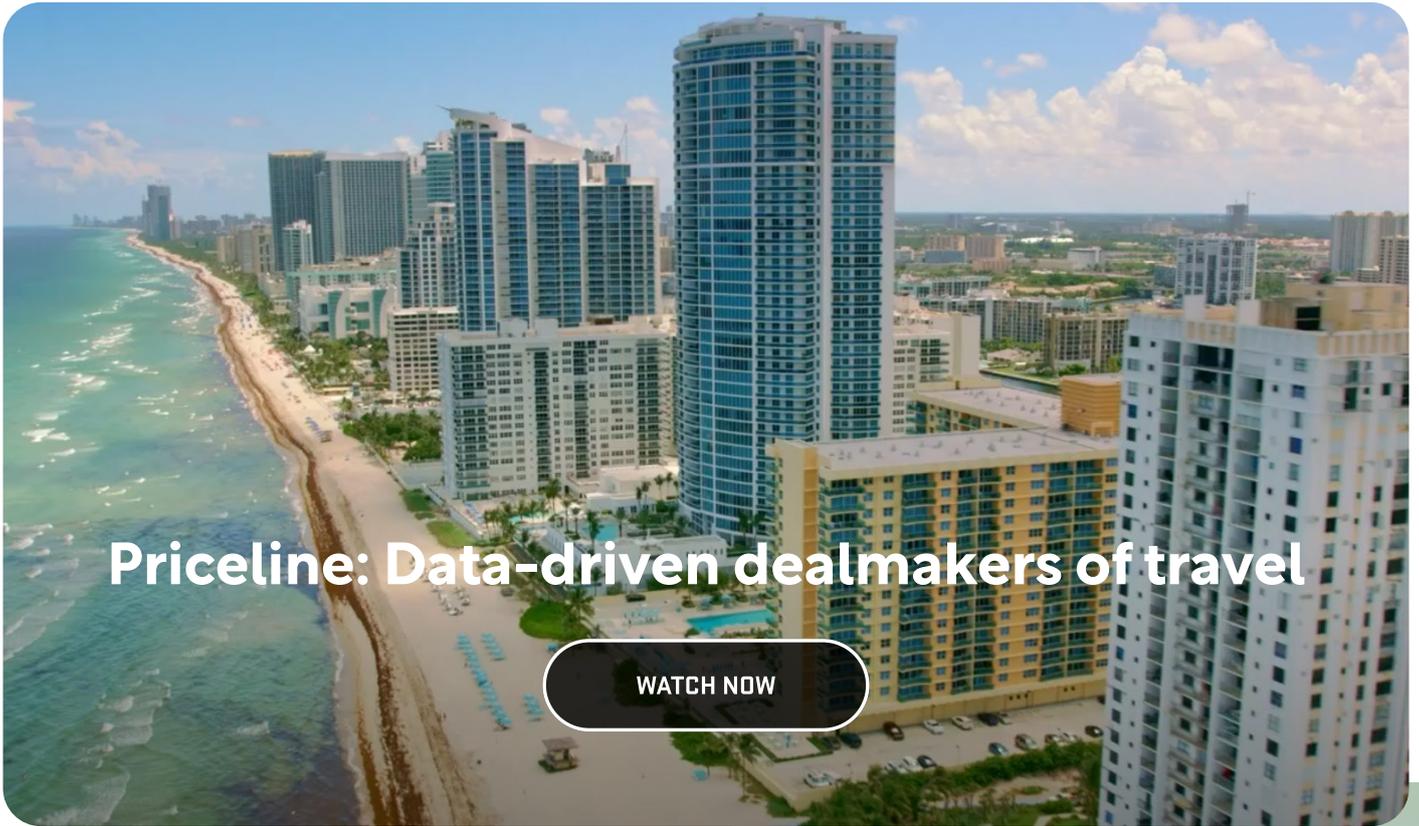
"We have millions of customers using our website and mobile apps at any given moment. Communications between our booking process and our data store need to happen within split seconds. Having a very high-powered, low-latency, high-throughput, scalable architecture for real-time data is paramount, and that's why we use DataStax," says Brodbeck.

Migration to Dynamic Managed Cloud Unleashes Innovation

As Priceline expands its Google Cloud environment worldwide, it's adding [Astra DB](#), DataStax's serverless, multi-cloud, managed database service, to its data management portfolio. Astra DB delivers massive data scale and elasticity, with distributed redundancy across Google Cloud regions.

"The turnkey, resilient Astra DB database as a service gives us the business critical performance and availability to ensure customer bookings can be processed without disruption. It frees our engineers to focus on developing innovative application features for travelers instead of managing infrastructure," Brodbeck says.

With the power of unlimited compute and seamless database scalability, DataStax is helping Priceline develop a rich, 360-degree view of its customers. "For Priceline, richer big data will become a competitive advantage, enabling us to better understand customer preferences, so we can provide best-in-class travel shopping experiences," says Brodbeck.



Priceline: Data-driven dealmakers of travel

WATCH NOW

“We have a highly experimental culture where we build features and functions and experiment to make sure they actually drive revenue or operational efficiency. That’s part of our secret sauce...”

MARTIN BRODBECK
CHIEF TECHNOLOGY OFFICER,
PRICELINE



Travel trends in the US 2021:

- 35% will embark on a road trip this year
- 32% plan to visit family or friends - as the pandemic has highlighted the importance of these relationships
- 57% plan to add to their bucket lists
- 66% plan to take advantage of working remotely by travelling more in 2021, with parents more likely to say this (71%) than non-parents (62%).
- 78% are excited to travel and 92% are planning to do so if they haven't already.
- 56% of Americans plan on rescheduling 2020 trips that were cancelled due to Covid-19

(Source - Priceline 2021 Work-Life Balance Survey)



Doubling down on Priceline's digital journey

Brodbeck commented that during the height of the pandemic, when lockdowns were in place around the world, Priceline took the opportunity to focus on three main areas:

1. The changing needs of the customer
2. Launch of VIP programme
3. Accelerated digital transformation

“We used the period during the pandemic to double down our efforts in relation to our digital journey which centres around cloud migration to Google and how we are using data-driven analytics to improve the customer experience,” he said.

Priceline started to focus on their digital transformation two years ago and according to Brodbeck were two thirds of the way through when Covid-19 struck. As a result the company has increased their technology budget as they feel it is a key enabler to drive future growth.

Recent improvements have included personal product searches on their website, app, VIP rewards programme, and a focus on their cyber security with round-the-clock monitoring of their Network Operating Centre.

Brodbeck points out how Priceline is actively using technology to turn the tide to bring affordable travel back to consumers in the US with the use of product development and a multiservice digital payment platform. “We actively seek to understand what our customers want and what our customers need from a travel perspective and then innovate accordingly,” he said.

“We launched a VIP Loyalty programme which rewards people who use our travel platform for buying products. The more you buy on Priceline's platform, the greater status you can achieve and the more you can save. We offer different tiering of discounting for our customers and benefits based on their spend

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Delivering Personalization in Real-Time with the Cloud

When Priceline launched in 1998, the internet was so new that the company's small staff relied on just two servers, which promptly crashed under the pent-up demand for discounted airline tickets. In the intervening years (and after adding more than a few servers), customer interests have broadened into queries for rental cars, hotel rooms and travel packages.

As an eCommerce pioneer, Priceline is no stranger to growth and change. When it became clear that staying agile would mean saying farewell to legacy architecture and instead piloting to the cloud, they turned to EPAM and Google to help make the move seamless. The ultimate goal: To become cloud native for the entire business.

Priceline's search engine is the backbone of its services. Jetsetters expect to find a dog-friendly beach cottage that can sleep 10 or a yurt with ample parking near a lake—with just a few clicks. To meet everchanging needs, the company has constantly improved its algorithms to deliver what travelers want, adding cleanliness ratings during the pandemic and bundling hotels with car rentals when everyone started taking more road trips.

By partnering with Google Cloud and EPAM, Priceline is harnessing the power of the cloud to use crucial analytics in real time, becoming even more customer centric. So instead of looking for broad trends, Priceline will be able to offer individual travelers personalized recommendations better suited to their search in the moment.

"Cloud strategy is key to better serving our customers, and EPAM is helping us transform into a faster, more agile travel dealmaker," says Martin Brodbeck, chief technology officer at Priceline. "Their engineering and business expertise have been vital to our goal of becoming cloud native."

Companies turn to the cloud because it offers flexibility, scalability and security. Priceline will see these benefits and more:

- Google Cloud Platform offers superior data analytics, warehousing and machine learning capabilities, so that the data Priceline is already collecting can become much more useful.
- The company's developers can deploy new functionality quickly, differentiating them from competitors.
- Priceline will be able to make travel recommendations that wouldn't have been possible before.

"EPAM's expertise is supporting the engineering capabilities needed to modernize Priceline's infrastructure and operations. This isn't a 'lift and shift' program, but instead a true transformation from legacy architecture to the cloud that cuts across people, processes and technology," says Craig Jonsson, key account director at Google Cloud.

"Here at EPAM we love complex challenges that can be solved with the help of technology, and I am especially passionate about opportunities that lead to better consumer experiences," says Regina Viadro, vice president and co-head of NA business at EPAM. "Helping Priceline transform its complex ecosystem in a modern and scalable way, alongside our partner Google, allowed us to do just that."

At the heart of Priceline's modernization, EPAM is engineering a pivot from applications running on servers to applications running in containers, using Kubernetes to manage Priceline's code, products and features much faster. The end result is service to customers that is more elastic, more portable, more cross platform and more cost efficient.

People travel for so many reasons: out of curiosity, to connect with friends and family, to get a change in backdrop. Regardless of motivation, travelers will benefit from the tailor-made options that Priceline can deliver from the cloud.

[Learn More About Moving to the Cloud](#)



“We have a high performance, fast website that provides the best possible user experience all over the world. This comes down to our technology platform and the people that run it”

MARTIN BRODBECK
CHIEF TECHNOLOGY OFFICER,
PRICELINE

and how many products they've booked.

“The second area we focused on was personalisation and product recommendations to our customers based on what they are searching for on our platform. The third area is that we've accelerated our digital transformation. We have an extensive cloud migration programme going on where we're moving our entire product platform to Google Cloud running on Kubernetes.

“We are transforming our data infrastructure and architecture from a transaction-oriented model to one that focuses on providing a complete view and leveraging that data to power Machine Learning (ML) moving forward. By the end of this year we'll have our entire product platform running on Google cloud and Kubernetes, and we'll have close to 50% of our data infrastructure running and Google clouds on BigQuery architecture.

“That has enabled us to build products



that are much more geared towards customer architecture and that can provide real-time analytics on how our products are performing. We're able to automatically scale our website based on traffic patterns and these have been key enablers for us to be able to scale the company in the last year.”

Customer-centric approach

Priceline has always put the customer at the heart of their operations, and two decades after Captain Kirk beamed the company into the stratosphere with their online presence, Brodbeck is using intuitive technology to keep life simple for their clients when it comes to payments.

“To ensure the simplicity of our website, we do extensive user experience testing to ensure our customers are getting the best possible experience. Priceline prides itself on being a company that continuously likes to innovate from a user experience perspective. We capitalise on that innovation

POWER OF PARTNERSHIPS



Martin Brodbeck, Chief Technology Officer, Priceline comments on the importance of a best-in-class ecosystem and highlights the importance of three key partners.

Google

Google is providing us with the next generation cloud infrastructure that is really going to help us scale and grow our business. They have been a key partner and helped us create a fantastic user experience for our online travel platform all over the world. We have Google regions running in Singapore, London and North America, and we'll be standing up one on the west coast. Having the right cloud infrastructure to power our products has been critical.

EPAM Systems

EPAM Systems has been an important infrastructure partner for us through our cloud journey. They provide us great talent and capabilities for us to move a lot of our mission critical applications and workloads from a traditional data centre architecture to one that rides on Google's Kubernetes platform. They have fantastic capabilities and insights on how to modernise a traditional data centre architecture.

DataStax

DataStax has been an amazing partner for us in providing next generation capabilities that power our data infrastructure from a real-time perspective. We've been using the DataStax products for several years now and are moving to their Astro cloud platform, which will give us a competitive capability for our hotels and rental car products.



“Priceline strives to be the best travel deal maker in the world”

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PRICELINE

through AB experimentation, where we'll build a product feature, and test it out on our website to make sure that customers are using the new feature effectively,” he said.

“We are increasingly aware that consumers like to pay for our products in many different ways. Our job is to provide the best payment capabilities for our customers through our technology to keep customers coming back onto the platform. Through the checkout process we offer our customers many different alternative payment methods from Google pay, Apple pay to PayPal and traditional credit cards and alternative payments which allows people to buy now and pay later.

“We also have a very sophisticated

marketing architecture, which allows us to provide customers with the latest deals on products.”

Competitive advantage

As Priceline moves into the next decade, Brodbeck reflects on what has given the company its edge in such a competitive market. “Three things give Priceline the competitive edge. The first is that we hire the brightest people all over the world who contribute to the building of our great products and help us innovate our infrastructure.

“The second is our process for software development. We have a highly experimental culture where we build features and functions



and experiment to make sure they actually drive revenue or operational efficiency. Our agile based software development that allows for experimentation is part of our secret sauce.

“The third is site reliability and performance. We have a fast, high performance website that provides the best possible user experience all over the world. This comes down to our technology platform and the people that run it.”

Focus on cybersecurity

As cyber attacks grow exponentially, Priceline is not taking its eye off their cyber security with round-the-clock monitoring of their Network Operating Centre.

“We have very sophisticated security

LIFE OUTSIDE THE OFFICE



Martin Brodbeck, Chief Technology Officer, Priceline

Holiday destination of choice and why?

London as it's a great mix of the old and new where you can visit a museum or just go for a pint of the best cask ale in an English pub. I also enjoy all different villages in London from Mayfair to Notting Hill.

What top five items do you always pack when you travel?

- I would always take good walking shoes or sneakers
- Electronic outlets to adapt to the different electrical architecture in a country
- Two or three good books that I may or may not read
- A good map of your destination
- Comfortable clothing

Top recommendation for a US winter break?

Vail, Colorado is my favourite place to ski in the US.

Favourite view?

The sunset at Martha’s Vineyard.

What is your top travel tip?

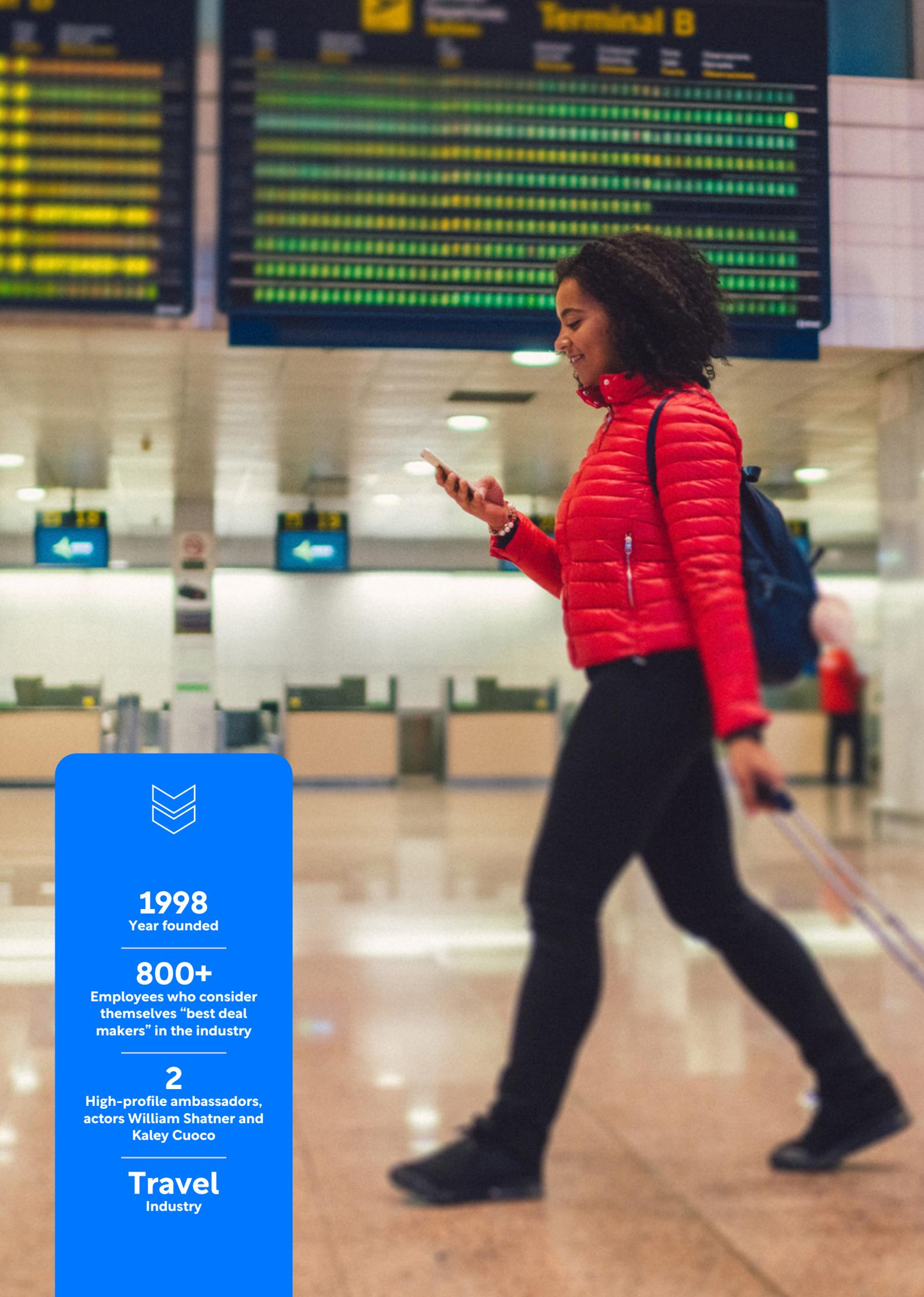
To be patient - as travel has changed significantly throughout the pandemic - and be comfortable.

Do you enjoy a tech detox or take your tech with you on holiday?

I take my iPad Pro to read the news in the morning but then I like to de-plug from work.

What next destination is top of your bucket list?

Germany and a golfing trip to Ireland.



1998

Year founded

800+

Employees who consider themselves “best deal makers” in the industry

2

High-profile ambassadors, actors William Shatner and Kaley Cuoco

Travel
Industry

“Priceline prides itself on being a company that continuously likes to innovate from a user experience perspective”

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architecture that we've made investments in over the years. From a fraud perspective we are using a technology platform from Forter that helps us identify any fraudulent activity. They have been a great partner and a phenomenal platform for us to install.

“We've made a significant investment over the last few years to combat any kind of denial of service or bot attack. We have also made heavy investments on encrypting all of our PII information at rest and in motion in our cloud environment, in our data centre environment, and even traffic within our own network is all encrypted, both in rest and in motion. We've also made significant investments in securing our code where we're using technologies from Bitbucket to make sure that there's no corruption across our GitHub repository that we use for code development.”

Brodbeck predicts the future of travel will be bright from a technology perspective.

“We are going to continue investing in ML to automate our core product and infrastructure capabilities. The best product and technology capabilities will power the next trip for all our customers.”

A deal that is sure to be given the seal of approval of Captain Kirk himself. 



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