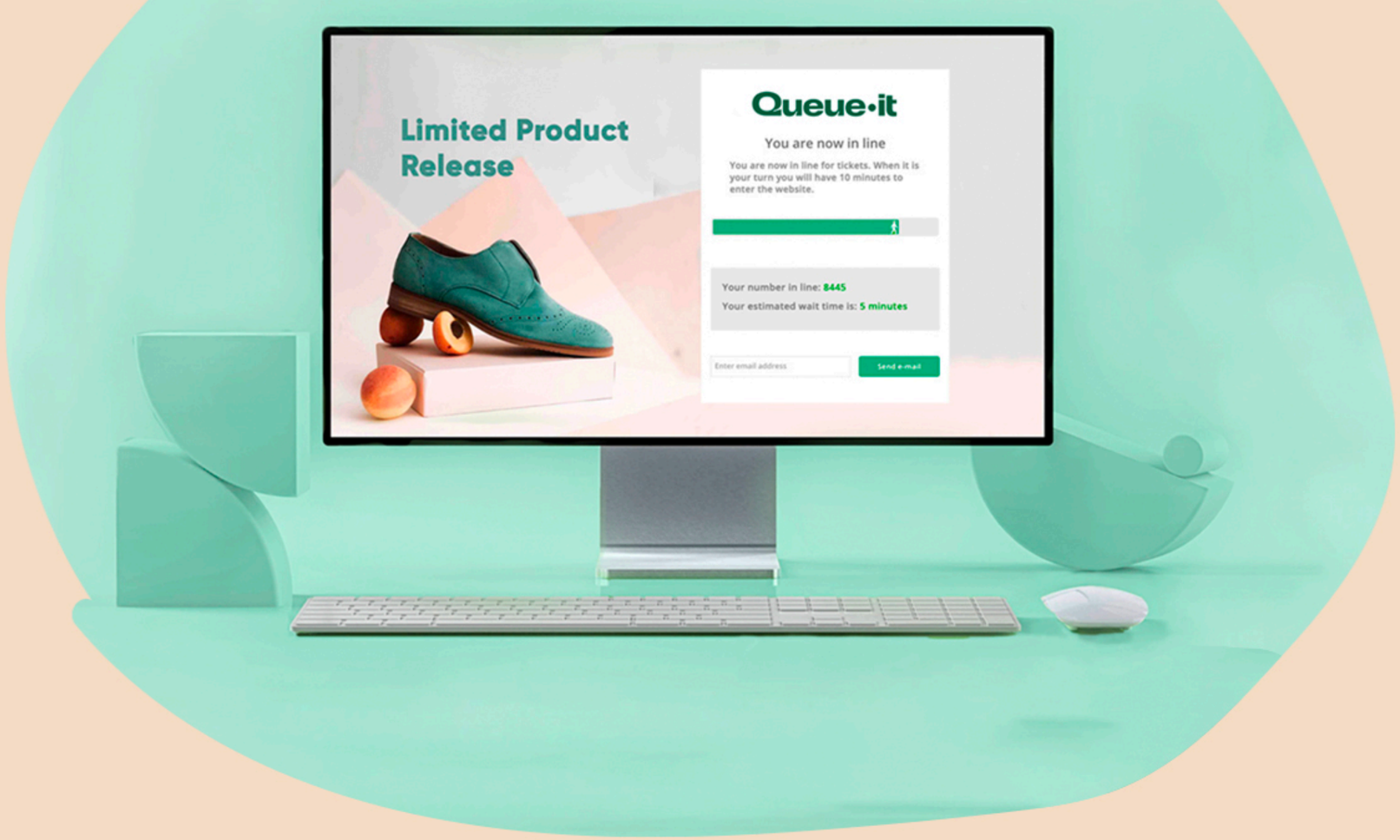
How to choose your virtual waiting room



Queue·it

Last updated: September 10, 2021

How to choose your virtual waiting room

No business owner likes a website crash. In our modern, connected world consumers expect to find whatever they need online, quickly and available 24/7. A slow or down site or app means lost sales, harmed brand reputation, and high internal resource costs. Plus, there are negative consequences down the line, with 79% of customers who encounter poor website performance avoiding the site in the future.[1]

Virtual waiting rooms help mitigate the business damage of downtime. But importantly, virtual waiting rooms also create fairness online in the same way queues do in the real world.

There are many arbitrary ways to deal with the challenges of high online traffic. A standard 404 page shown to the unlucky customers who time their purchases incorrectly. A CDN / reverse-proxy based waiting page that holds visitors and returns a random selection to the website. An administrator who flushes visitors out of an overloaded part of the customer journey—like the payment system—to have them start all over again.

But you've decided you want to successfully handle high traffic and do so in a fair way. Now you have to decide how to choose the right virtual waiting room for your needs. If you're going to control your online traffic, you want to do it right. This guide is here to help.

At Queue-it, we've worked with hundreds of enterprises worldwide over the past decade, in industries as varied as ecommerce, ticketing, education, finance, and the public sector. Across the board, these are their most important considerations when choosing a virtual waiting room. The first thing you need to consider is:

What is your use case?

First things first:

To know how to choose the best virtual waiting room, you'll first have to be clear about what your need for it is.
Here is a list of some primary scenarios in which a virtual waiting room is a valuable asset:

Use case	For example, when you're:
Major shopping holidays	• Running Black Friday Sales • Having a big summer promotion • Planning a Single's Day campaign
Timed ticket onsales	• Managing a big concert onsale • Selling tickets to performing arts shows like • Organizing special art & museum exhibitions • Running an airline's flight promotions
Product launches	• Unveiling a new fashion line • Launching a new collection of makeup
Marketing promotion	• Collaborating with instagram influencers on promotions • Sending promotional email blasts
Limited-collection releases	• Collaborating with instagram influencers on promotions • Sending promotional email blasts
Unexpeted traffic surges	• Selling movie tickets and a rainy weekend spikes interest in going to the cinema • Receiving primetime press coverage that creates buzz
Applications and registrations	• Managing university housing registrations • Administering immigration visa applications • Making a limited-time low-interest rate offer on financial account
Coverage for planned downtime	• Performing standard & necessary website maintenance • Loading content for shopping holidays like Black Friday

What aspects are specific to your situation?

You've identified your use case, but now you need to consider the other facets of your situation.

Do you have a planned, timed release where you know when the traffic will come? Or are you looking for 24/7 peace of mind against traffic surges, whenever they come?

If you're running a timed release, do you experience a build-up of customers right before the sale that strains your infrastructure?

Are you looking to control traffic on your website? App? Mobile browser? A combination? Are bots a problem?

These are just a few aspects you'll need to consider.

PLANNED, TIMED RELEASE?

BOT PROBLEMS?

UNEXPECTED TRAFFIC SURGES?

CUSTOMER BUILD-UP BEFORE SALE STARTS?

WEBSITE, APP, OR BOTH?

To make things easier for you, we've split things up into two sections:

- Customer Experience Considerations, for the ecommerce, marketing, and ticketing managers
- Technical Considerations, for the CTO and IT, development, and product directors

Customer experience considerations

How do you want your visitors to feel while they're in line?

Let's face it—no one really enjoys waiting in a line. You would think the length of the wait would be the biggest determiner of customer satisfaction. Shorter wait = happier customer, right? Not quite.

Psychological studies show that how people feel when they wait in line often matters a lot more than the duration of the wait.[2]

Queuing expert David Maister has outlined 6 key principles behind the psychology of waiting.[3]

The virtual waiting room you choose should be designed around these principles.

1. Occupied time feels shorter than unoccupied time

With a physical queue, customers are limited by the need to stand in line. Online queues have the advantage of giving customers the option to do basically anything else while they wait.

Does the virtual waiting room have an option to notify customers when it's their turn in line? That way they can check email, tidy up around the house, or any number of things while waiting. If only a certain part of your website is behind a queue, visitors can browse the rest of your website while they wait, too.

2. People want to get started

What flexibility does your virtual waiting room have to customize the waiting page? Can you embed games and videos to command people's attention? Can you include sneak peeks or previews of the products they're waiting for to let them feel like they've started the buying process?

3. Uncertain waits are longer than known, finite waits

Does the virtual waiting room show visitors an estimated waiting time? Does it provide up-to- date progress on where the visitor is in the queue? Does it show how many people are in line?

4. Unexplained waits are longer than explained waits

Saying your site is experiencing "technical difficulties" is a vague and unnerving description for visitors.

Can you customize your virtual waiting room page to share the exact reason why users are in line—and maybe even give them some anticipation for what's to come? Does the virtual waiting room let you send real-time communications to your waiting customers?

5. Unfair waits are longer than equitable waits

A first-in, first-out (FIFO) wait is the exemplar of fairness. Does the virtual waiting room redirect users to your website in a FIFO or random process?

6. Anxiety makes waits seem longer

Put yourself in your customers' shoes. They really want the concert ticket or pair of sneakers they're waiting in line for. That in itself is already anxiety-provoking. Removing anything that could cause anxiety (e.g. warning visitors they only have a few minutes to complete their booking) is great. Preemptively addressing any anxieties, rational or not, is even better.

A virtual waiting room that is perceived as fair, provides updated wait time information, and allows people to occupy their time while they wait will be far better at reducing the anxiety of those in line.

What will the experience be like for your mobile customers?

Considering the experience of your mobile customers is critical.

It's been several years since mobile has made up over half of all web traffic.[4] 67% of customers have retail apps downloaded on their phones,[5] with 49% of them using the app to make purchases.[6] Mobile ecommerce continues to grow nearly six times as fast as desktop.[7] And your customers who make mobile purchases are your biggest spenders, tending to spend twice as much as customers who don't buy via mobile.[8]

First, if you have an app, does the virtual waiting room integrate with it? Second, if your customers are using a mobile browser, will the queue page be fully responsive? Third, will mobile users be in the same online queue or a separate one from your desktop visitors?

Finally, if your shoppers open a new application, lock their phones, or run out of battery, will they lose their place in line? If fairness is your goal, the answer is no.

Should all website visitors enter the virtual waiting room, or only visitors to part of your website?

Depending on your use case, the answer to this question will be different.

For example, if you're a movie theater running a pre-sale to an upcoming blockbuster, you probably still want people to visit your site and purchase tickets for other movies without having to wait in a queue.

If you're a retailer dedicated to exclusive streetwear drops, however, you'll probably want to control traffic inflow to your entire site.

It's important that the virtual waiting room you choose can be implemented where you need it. Having the flexibility to implement at both the website and page level is a bonus.

What will the experience be like for your mobile customers?

Are you worried about visitors skipping the line?

Virtual waiting rooms have several ways of being implemented that involve their own tradeoffs. A common implementation method is inserting a bit of JavaScript code on the applicable webpages that will redirect visitors to the waiting room. Setup is fast and easy.

However, tech-savvy visitors could manipulate their browser's ad blocker to stop the code from running. This would allow them to skip the line. If this is a concern from a business or customer experience perspective, make sure to talk with your technical team about using a server-side implementation that cannot be skipped.

Do you have VIP visitors you want to give prioritized access to?

Let's say you're a performing arts theater and you want to give members prioritized access to tickets while they are also being sold to the general public.

In this case, the virtual waiting room should give you a way to differentiate the two visitors and pass the VIP patrons either faster through the waiting or through a separate faster-moving waiting room.

Are you concerned about bots?

We know that bad bots account for over 21% of ecommerce traffic and nearly 23% of ticketing traffic.[9] Depending on your segment, they might not pose such a big problem. But bad bots plague ecommerce releases and ticketing onsales in particular.

If bots are a problem, how does the virtual waiting room fit into your bot mitigation toolkit? Does it work with other bot mitigation tools?

Does the virtual waiting room include robust bot security options? For example, some virtual waiting rooms allow visitor validation using external IDs. These could be a student email for housing registrations or a membership ID for a members-only ticket sale. Without them, visitors cannot enter the waiting room. Another option is using Google's CAPTCHA to identify malicious users.

Technical considerations

How does it work?

There are many different ways to categorize the way a virtual waiting room works. That said, an important differentiator is the underlying framework. Does the virtual waiting room work via reverse proxy or URL redirection? These frameworks dictate features and implementation methods, and so are important to understand.

Reverse Proxy

You might already have reverse proxies set up on your infrastructure if you're leveraging a CDN or DDoS protection from providers like Fastly, Cloudflare, or Akamai. Some virtual waiting rooms also operate on a reverse proxy framework. They are quick to set up as they don't require code changes, just the addition of another reverse proxy or the configuration of an existing one (if it offers a virtual waiting room).

However, two drawbacks come from the fact that your traffic / payload passes through the reverse proxy.

First, reverse proxies need to strip SSL encryption to function, rendering sensitive information into clear text. Even if this payload isn't persisted in storage, it becomes open to unauthorized access. If you direct your traffic through a reverse proxy, you'd need to decide if sharing your traffic data with the company behind the virtual waiting room is in line with your business objectives.

Second, adding a reverse proxy creates an additional point of failure. Because traffic passes through the reverse proxy, even when it is below levels where a waiting room is needed, your whole website goes down if the proxy goes down. The additional layer could be a bottleneck and could therefore impact website performance and availability.

URL redirection

With this type of virtual waiting room, the waiting room is a page that visitors are redirected to. The virtual waiting room system records visitors' arrival to the queue, assigns a unique ID, and determines when it's their turn to be redirected to your website. Depending on the virtual waiting room, you should be able to implement this framework at several levels in your infrastructure and user flow (e.g. product pages, checkout, entire website, etc.).
The URL will shift to something like YourWebsite.VirtualWaitingRoom.com. If you think this could be a trust issue with your customer base, you should check that the virtual waiting room allows you to customize the URL customers see while in the waiting room, like queue.YourWebsite.com.

Unlike the reverse proxy, none of your website payload is transported through this type of virtual waiting room. When visitors are out of the virtual waiting room, for example entering payment information to complete their orders, they are fully on your infrastructure.

In the case that the virtual waiting room is down and you have implemented using client-side JavaScript, visitors would still proceed to your website as if no waiting room were there. They would not get a 500-type HTTP error code.

If you implement using a server-side integration, your virtual waiting room should provide a health check function you can call to ensure the service is up before sending visitors through. This way, you make sure potential downtime of the virtual waiting room will not impact your website.

How is it designed?

Is the virtual waiting room designed based on the first-in, first-out (FIFO) principle? The key determiner is if the virtual waiting room has a unified, centralized list of requests.

Centralized first-in, first-out (FIFO)

To operate a first-in, first-out queue, a virtual waiting room needs to have a centralized list of requests to your website. That way, it can track the order of all traffic, assigning an accurate place in line to your visitors and determining who should be the first ones out. The FIFO design should be possible with either the reverse proxy or URL redirection frameworks.

Decentralized network-based proxy

Several providers run reverse proxies in a distributed or decentralized way similar to CDNs. Fundamental to CDNs is the geographical distribution of your website to servers around the globe. This decentralization to the network edge allows you to bring your website content closer to visitors, wherever they are.

When the decentralized reverse proxy is tasked with running a virtual waiting room, however, it becomes evident that having a unified overview of the order of all requests isn't possible. To compensate for this, reverse proxies on the network edge take a rate-limiting approach. Virtual waiting rooms using this setup use complex rules to take a proportion of visitors at each edge location through to your website.

But traffic isn't equally spread around the world. In practice, this means that how quickly visitors get through to your website depends on traffic levels in their area. For example, if traffic to your site is heavy in Chicago but light in Copenhagen, the Copenhagen visitor could get put through to your website even while visitors in Chicago who arrived earlier are held to wait in the waiting room.

Where in your infrastructure do you want to integrate the virtual waiting room?

Depending on the virtual waiting room you choose, the answer could range from a client browser to a backend server. With a URL redirection virtual waiting room, you can implement as client-side code that loads on your customers' browsers without server-side changes. A client-side solution is open to end-user manipulation, though, and it means traffic hits your infrastructure before the code runs.

Let's say you're looking for a server-side solution. Take one web application's possible infrastructure setup as shown below. Depending on the solution you choose, the green arrows show locations in your infrastructure where a virtual waiting room can be integrated. Where you decide to integrate depends on your specific situation.

A payment gateway is invariably the weakest link, so you'd want to be sure to integrate before visitors hit that. Maybe you want to integrate at the load balancer.

But it's under the control of a web hosting provider, making changes there more difficult. Then you could integrate at the server or ecommerce platform level.

Or, maybe you're worried about overworking your servers. In this case, you'd want to implement in front of the servers, for example into your existing CDN reverse proxy or load balancer. If you've deployed code client-side, see if the virtual waiting room lets you link visitors directly to the online queue, useful if traffic comes from email or social media campaigns.

The more connectors available to complete integrations into your system, the higher the chance is you'll get exactly what you want out of your virtual waiting room.

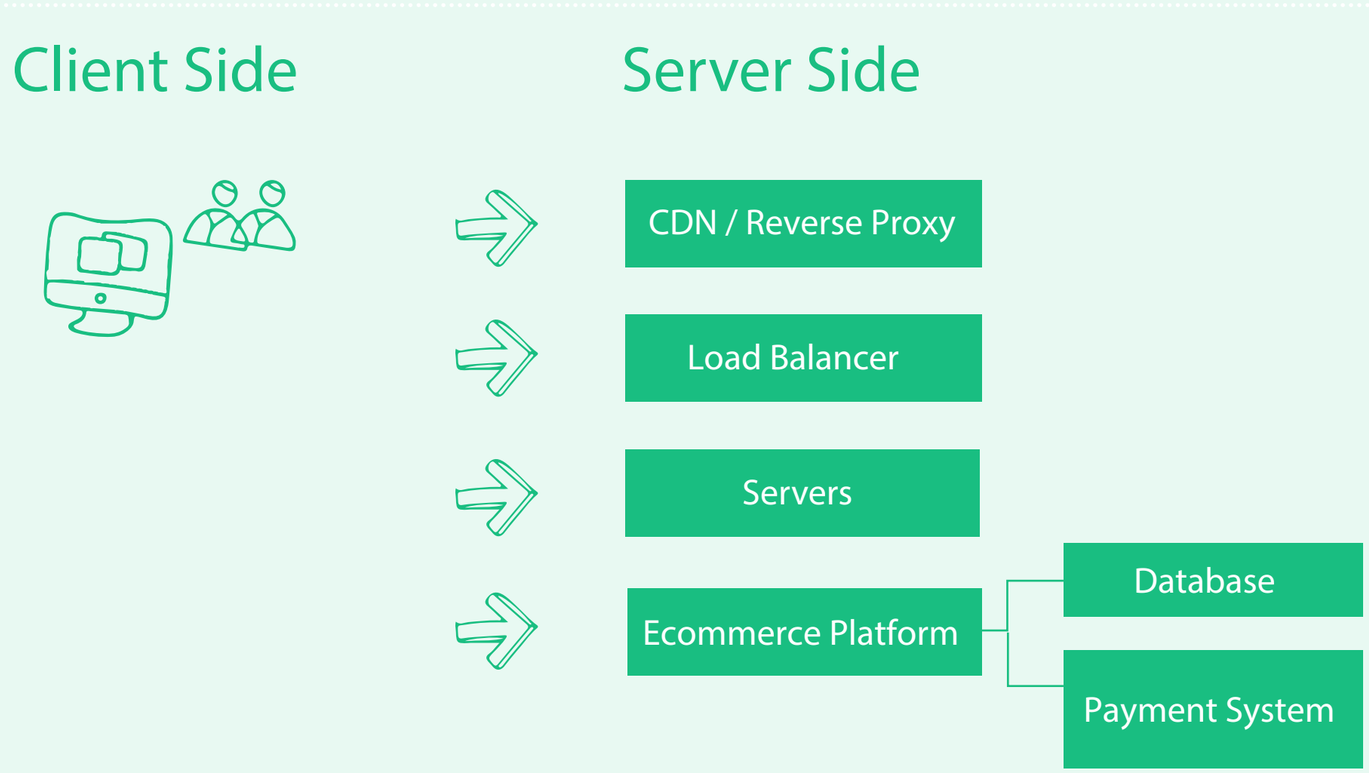


Figure 1. Example infrastructure setup with virtual waiting room integration points.

Do you expect a build-up of visitors before your event?

Depending on the virtual waiting room you choose, the answer could range from a client browser to a backend server. With a URL redirection virtual waiting room, you can implement as client-side code that loads on your customers' browsers without server-side changes. A client-side solution is open to end-user manipulation, though, and it means traffic hits your infrastructure before the code runs.

Let's say you're looking for a server-side solution. Take one web application's possible infrastructure setup as shown below. Depending on the solution you choose, the green arrows show locations in your infrastructure where a virtual waiting room can be integrated. Where you decide to integrate depends on your specific situation.

A payment gateway is invariably the weakest link, so you'd want to be sure to integrate before visitors hit that. Maybe you want to integrate at the load balancer.

Are you worried about visitors skipping the line?

Tech-savvy users can use their browser to manipulate client-side JavaScript code. They could block the redirect to the online queue and thereby unfairly skip the line.

Most businesses don't experience this problem. But you and your customer experience colleagues should be aligned on whether or not you think this will be an issue (as also mentioned under "Customer Experience Considerations").

If you are concerned, you should make sure to implement your virtual waiting room using a server-side integration. This way no end-user manipulation can take place, and the waiting room will be impossible to skip.

What are the options to integrate with mobile applications?

Your mobile customers are incredibly valuable, and their user experience should be a priority (as also described in "Customer Experience Considerations").

From a technical perspective, if you want to use the virtual waiting room to protect traffic surges within your mobile app, don't take for granted that a virtual waiting room will work seamlessly with it.

Are there SDKs for iOS and Android available? Is the queue page end-users see mobile responsive? Are app users put into the same queue as desktop users, or a different one? Or is this flexible? How will the online queue respond if customers leave the app, lock their phones, or if their phones run out of battery? These are all important considerations if managing traffic in your mobile app is within scope.

How much time and how many resources do you have available?

You'll need to match your goals with the resources you have available to implement the virtual waiting room. Generally speaking, virtual waiting rooms are not complex to integrate. But there is a difference in the 30 minutes it takes to put in place JavaScript on your website versus the day it can take to integrate into your web servers.

Finally, consider the level of support you'll receive from the virtual waiting room provider. Are other businesses satisfied with the level of support? Does the provider supply detailed technical documentation? Is the code open-source and freely available? The answers to these questions will also determine how easy it will be to implement the virtual waiting room.

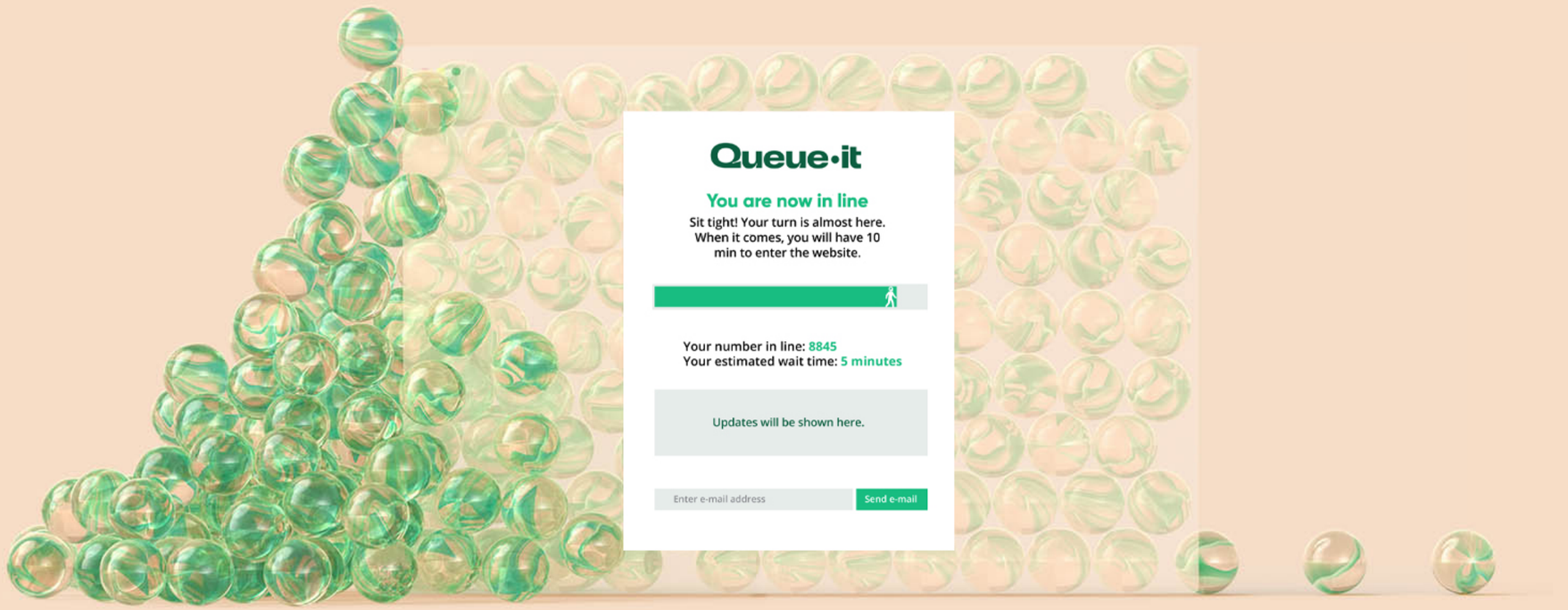
Considerations checklist

Now that you know the main considerations in choosing your virtual waiting room, here is a comparison table for you to use in your search to find the virtual waiting room that's right for you.

Considerations for your Virtual Waiting Room	Queue-it	Option B	Option C
Is it based on a fair first-in, first-out process?	✓		
Is it guided by queue psychology with features like wait info, real time communication, embedded content, and e-mail notifications?	✓		
Can it integrate into your mobile app?	✓		
Do your mobile customers maintain their place in line if they open another app, lock their phone, or run out of battery?	✓		
Can it protect your entire website as well as specific web pages?	✓		
Does it prevent customers from bypassing the waiting room?	✓		
Does it allow prioritized website access to your VIP customers?	✓		
Does it work with best-in-breed bot mitigation tools and include bot protection features?	✓		
Can it be implemented at multiple levels of your infrastructure setup?	✓		
Does it avoid processing your private customer data?	✓		

Explore Queue-it's virtual waiting room

START MY FREE TRIAL



1 https://queue-it.com/blog/the-importance-of-ecommerce-site-speed/

2 https://www.washingtonpost.com/news/wonk/wp/2015/11/27/what-you-hate-about-waiting-in-line-isnt- the-wait-at-all/?utm_term=.b15fa4698e18

3 https://queue-it.com/blog/understanding-psychology-of-queuing/

4 https://www.thinkwithgoogle.com/marketing-resources/data-measurement/mobile-page-speed-new- industry-benchmarks/

5 https://www.businesswire.com/news/home/20180823005408/en/Synchrony-Study-Consumer-Adoption- Retailer-Mobile-Apps

6 https://www.retailwire.com/discussion/shoppers-may-finally-be-using-retail-apps/

7 https://www.emarketer.com/content/the-future-of-retail-in-2019

8 https://queue-it.com/blog/the-rise-of-mobile-in-the-us-uk/

9 https://www.youtube.com/watch?v=My8S4WCqti8&t=400s