QUEUE·IT

Online Queuing for Ticketing

Best Practice Guide

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1 Online queuing for ticketing – best practice guide

1.1 Introduction

This guide introduces the Queue-it concept and solution, and describes best practices for application within the online ticketing industry.

Queue-it is an online queue system for managing website overload during extreme user peaks, such as high volume ticket onsales. Many headlines have featured website crashes in connection with onsales of mass interest ticket sales. Handling these extreme user peaks is no trivial challenge from an IT perspective.

The reasons for the slowdowns and crashes when thousands of fans gather to secure tickets are complex and often consist of a number of factors, some of which are beyond the control of the ticket reseller, or even the ticketing system provider.

The investments in additional server capacity and load balancing efforts, which is made throughout the ticketing industry to fix this – usually infrequent – challenge, are significant.

Queue-it was originally created for the ticketing industry, providing a unique and innovative low-cost solution to the user peak challenge.

Managing the end-user inflow in detail by offloading users exceeding the site capacity to the queue system has proven to dramatically improve the negative consequences of an uncontrolled peak situation, which would otherwise result in a website failure.

1.2 How does Queue-it work?

The volume and pace of user inflow to your website is managed dynamically in the browser-based self-service queue console.

As the ticket sales site capacity opens up, the users who waited in line are redirected back to the site in the correct order and pace.

When the queue is running, it is possible to post messages directly to those waiting in line - or use the queue page to inform, advertise and engage the audience.

Implementing Queue-it requires no changes to the existing back-end, however, more sophisticated integration is available as well.

Once the queue is set up, real time queue statistics provide valuable management insights.

1.2.1 Problem

Websites (and/or back-end systems) crash or slow down during transaction peaks, e.g. in connection with high demand ticket onsales.

Many attempts have been made to address these issues over the last 15 years, but online users are still faced with "server too busy" messages and highly unsatisfactory user experiences.

A large number of the problematic online business processes are "transactional". Transactions are sequential by definition, which proves linear scaling to be impossible.

After implementing Queue-it, ticketing industry customer studies show that 92% of visitors had an improved purchase experience.

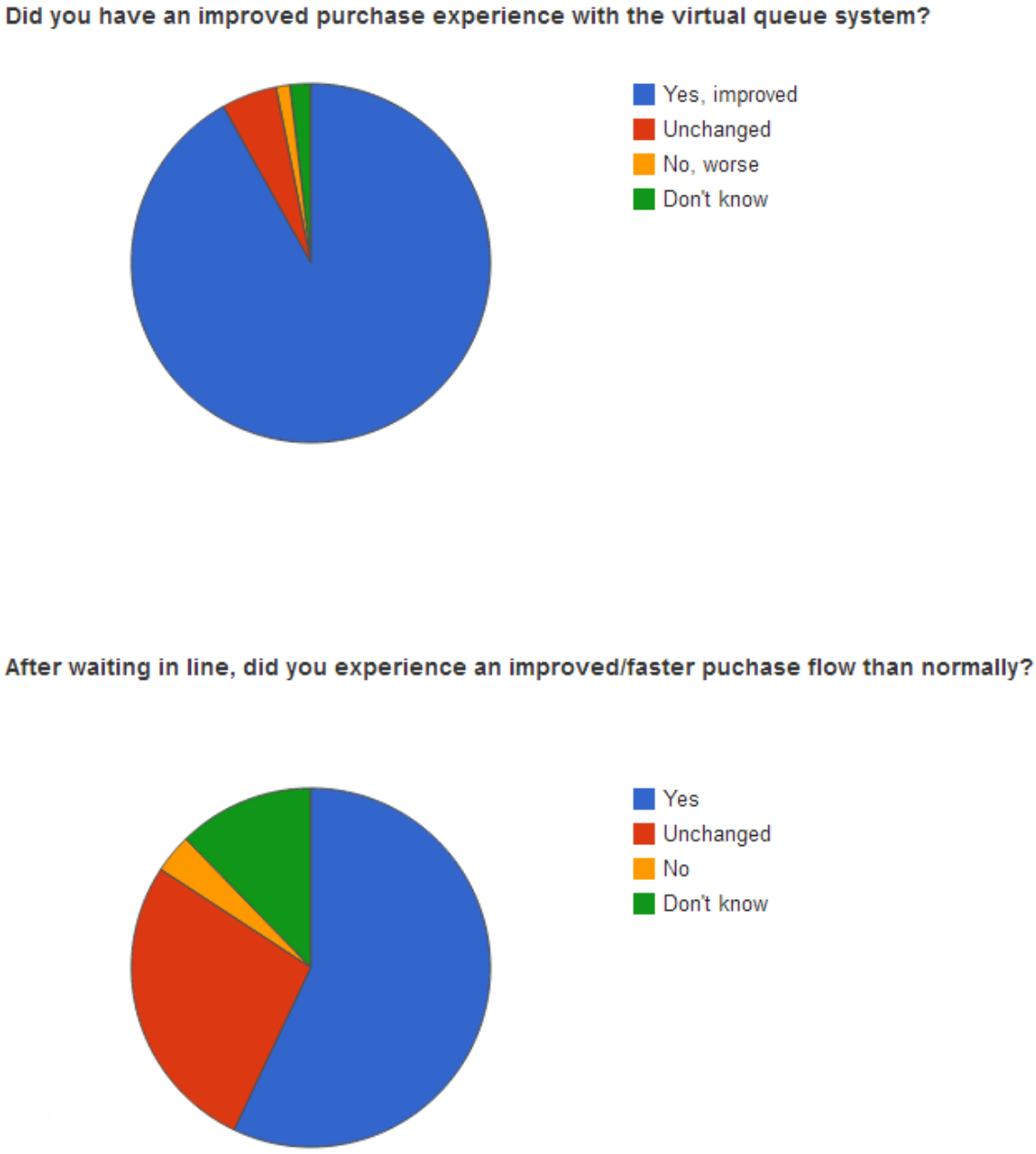

Figure 1: End-user purchase experience survey

1.2.2 Solution

Queue-it is an online queue system that prevents websites from crashing during transaction peaks by placing excess users in line – online in a cloud computing-based SaaS (Software-as-a-Service) solution.

While providing dynamic information to end users about queue status and expected time to service, Queue-it ensures that the peak website does not crash or slow down by keeping the inflow of users at or below the site's capacity.

The Queue-it platform is deployed on Amazon Web Services cloud computing platform. This technology and the scalability enable Queue-it to hold an unlimited number of users.

1.3 Technology

Queue-it is a cloud computing based Software-as-a-Service (SaaS) solution. Patent pending.

Software as a service (SaaS, typically pronounced 'sass') is a model of software deployment whereby an application is licensed to customers for use as a service on demand via a web browser or web service interface. However, the software is deployed outside the customer's internal infrastructure in the cloud computing infrastructure.

1.3.1 Amazon Web Services

Our Microsoft based system development platform is based on an Amazon virtual server setup, and Queue-it uses Amazon Elastic Compute Cloud (Amazon EC2) and Amazon SimpleDB.

This technology has a scalability that enables Queue-it to hold an infinite number of simultaneous users.

Queue-it is available on the Amazon Market Place and our technology is an accredited member of the Amazon Partner Network as an Advanced Technology Partner.

1.3.2 Security and data encryption

Queue-it continues to meet the highest standards in the field of security and data encryption with the implementation of McAfee Secure and McAfee PCI Certification Service.

The Queue-it website, Queue-it GO self-service console and end-user queue pages are McAfee Secure and PCI DSS (Data Security Standard) certified. McAfee Secure is the worldwide leader in website security services. McAfee Secure ensures our customers and users do not have to worry about security issues such as intrusion by hackers.

Although Queue-it does not process or store financial transactions (bank cards) in the queue system, we have chosen to comply with the PCI DDS framework anyway to provide the highest standard for our customers and visitors.

PCI DSS ensures that all bankcard details of the consumers are protected at every step of the buying process. The PCI DDS framework guarantees a safe purchase process to all card buyers.

Separate and distinct from the mandate to comply with the PCI Data Security Standard is the certification, or validation, of compliance, whereby entities verify and demonstrate their compliance status. It is a fundamental and critical function that identifies and corrects vulnerabilities, and protects customers by ensuring that appropriate levels of cardholder information security are maintained.

For more information please visit McAfee.

1.3.3 Integration

Queue-it offers a variety of integration options, from a simple link with no user data placed outside the existing systems to a sophisticated, deeper integration with e.g. your ticket sales platform.

1.3.4 Accessibility

Queue-it public queue pages are WCAG 2.0 (Level AAA) compliant.

1.4 End-user experience

By adding Queue-it to a website, users exceeding your site capacity limits are offloaded to the queue system. End users are continuously updated on their individual queue status on the queue page.

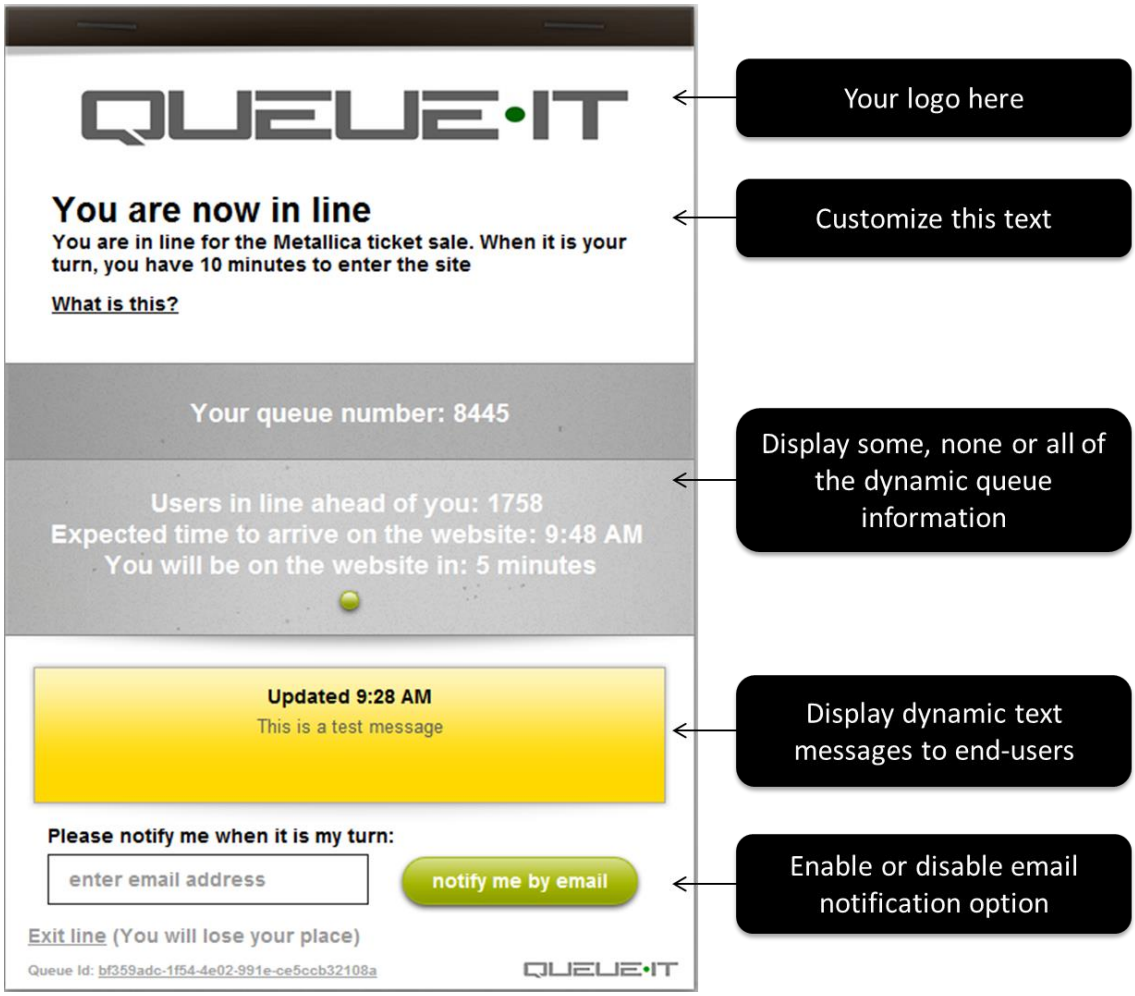

Figure 2: Queue-it queue page

As capacity opens up, the users who waited in line are redirected back to the site they wanted to visit in the correct order and pace.

When the queue is running, it is possible to post messages directly to those waiting in line – or use the queue page to inform, advertise and engage your audience.

1.5 Ticketing onsales best practice

Online ticketing is by far the industry that is most frequently hit by massive end-user loads due to the nature of high interest onsales.

This calls for a few specific considerations when determining your queuing strategy for major ticket onsales.

Based on thousands of successful queues on ticket sales, our experts have come up with the following central recommendations to be included in your queuing strategy:

1.5.1 Start your pre-queue well ahead of the onsale

The *pre-queue* functionality is designed to capture all users who arrive before the onsale begins. The purpose of implementing a pre-queue for anticipated high load ticket sales

is to provide users with an enhanced perception of end-to-end fairness in the buying process. Additionally, the pre-queue serves to prevent the onsales site from failure due to overload before the sale starts, which is a very common situation without a pre-queue.

1.5.2 Get your security settings right

The ticketing industry is often hit by fraudulent attacks during high interest onsales. In order to minimize the risk of fraud, and site overload, we strongly recommend implementing the *Known User* functionality. The Known User setting is applied to test if a specific user has arrived on your site via the queue, or if the user has tried to bypass the queue. When the Known User security is activated, all users redirected from Queue-it to the transactional (onsales) site gets an extra query string parameter "h" with a hash value. This hash value is used in the verification and also ensures that nobody has tampered with the query string parameters. A timestamp is also added as a query string parameter. Download the Known User white paper for additional details.

1.5.3 Decide how to handle users who did not get a ticket

Once an onsale is completed and all tickets are sold, a number of users may remain in the queue. Queue-it offers several options for handling these potential (but somewhat disappointed) customers. These are some of our favorite applications:

- Sign up for a waiting list for extra tickets/events
- Sign up for our newsletter
- Participate in a survey

Or you can just redirect them to a "sold out" information page.

1.6 More info

Sign up for a free trial today: http://www.queue-it.com/free-trial?guide=ticket

Or contact us for more information:

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Additional white papers available here: http://www.queue-it.com/white-papers?guide=ticket