Line Management Systems

- From Virtual Queuing to Web Reservation Based Systems

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Table of Contents

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The purpose of this paper is to describe the development in Line Management Systems for Amusement and Theme Parks, and other similar attractions. What kind of models or concepts are the different systems based on? How are they servicing the different needs the guests and the management of the park has? Of course the guests do not like to stand in line, but can a line management system also be a planning tool for the guests? Can it increase rides per capita per day and be a management tool for the management of the park? Furthermore this paper will give a quick review on what statisticians have to say about queues in parks, and reveal why is it not possible to remove lines by building more attractions?

Two different types of line management systems

Let's start by defining the difference between two of the line management systems on the market today; *Virtual queuing* and *Reservation based systems*.

Virtual queuing is a system that allows you to stand in a 'virtual queue', which means that the wait is equally as long as it would have been in the actual physical queue, but the guests can move around the park until it is their turn. A parallel in daily life is taking a number at the drugstore, shops or banks (before Net banking), where you also not have to stand in the physical line, but can go outside until you are called on.

The reservation based system gives the guests the right to enter an attraction at a given time without standing in line since they have made a reservation in advance. This reservation can both be made from home or on site in the park.

Table 1 gives a quick overview of the two types of system compared to a regular standby line on some important park management parameters.

Table 1

	Regular standby line	Virtual queuing	Reservation based system
Guest planning (itinerary)	No	No	Yes
Advance planning and booking	No	No	Yes
Load balancing of guest capacity	No	No	Yes
Management of guest behavior	No	No	Yes
Increase rides per capita	No	No	Yes
Book as you go	No	Yes	Yes
Increased in park spent	No	Yes	Yes

Making a reservation has other benefits than avoiding lines

Queues in Theme- and amusement parks are extreme. According to Amusement Business the national (US) average wait time at major attractions during the summer was sixty minutes, after which patrons got to spend two minutes on the ride*. Furthermore, there are too many queues for the guests to "choose" from.

The guests will face the two folded problem of queues:

1. The discontent of standing in line for hours

2. The stress and frustration of always not knowing if you stand in the "fastest" line, and which to pick next

Both of these problems are solved when using a reservation based system. When booking the rides in advance the guests will experience no lines and the itinerary will ensure a customized optimally planned experience.

The stress and frustration of not knowing what to do next can be compared with well known daily problem of many commuters, who have to decide which way to take to and from the job, as the travel times always are different.

Does the planning and itinerary take out some of the spontaneity of a park visit? Yes, in some ways it does. But if the alternative is waiting for hours with stress and frustration, what is then preferable? On the other hand, how spontaneous, is a visit to a park in reality? Are 80-90% of guests in most parks not repeat guests year after year?

Increasing rides per capita per day

First let us kill a myth. A frequent heard argument about lines from guests is: if the park would only build more attractions then there would be no queues.

Is it really possible to solve the problems with lines in this way? According to statisticians it isn't. No matter how many attractions/rides the parks build there will still be queues. Why? Because one needs to take variability into account, which is the _uneven_ _distribution of patrons from one attraction to another or from one hour to the next (Numbers rule your world by Kaiser Fung, 2011, McGraw- Hill)._

Also from a more practical point of view this arguments seems fair. Who has not seen guests for ex. go to the attraction with the longest queue or take the first attraction in the park, despite a long line? Very few guests go to the back of the park and start, if they arrive in the morning.

When a park offer the guests to plan and make reservations in advance and/or upon arrival at the park, the reservation system will even out the "variability" or do the "load balancing" of the guest capacity as Robert Niles calls it.

Robert Niles writes on April 30 2012 in themeparksinsider.com:

The challenge, beyond simply getting the tech to work, is load balancing guest capacity across the parks. Ideally, NextGen would allow Disney to do a better job of spreading crowds throughout the park, as it would give Disney the capability of more actively managing where guests go, and when. NextGen could allow a next generation ride reservation system to better distribute guests throughout the park.

We can with actual numbers from a park using Adventure Resource Planner (ARP) confirm that it will be the case, what Robert says:

Gain in productivity: up to 15% (1500/9000) if all rides hour by hour have the same flat curve as for the bookings. Or 15% more rides per day per guest (see below figure 1). By using the capacity represented by the 2 triangles to the left and right of the bell curve. See Figure 1 on page 5.

Also Disney has seen growth in productivity after release of FastPass+ in Magic Kingdom. "Igor, (Bob Igor Disney Chairman and CEO) told analyst last week that Disney was able to accommodate an extra 3000 visitors a day in the perennially packed Magic Kingdom during the holidays, thanks to MyMagic+".

Iger continued; "What we are seeing there is substantially higher utilization of that product among our guests than we saw with **a traditional FastPass –** by the way, by a wide margin"

Iger added."And since the goal of this was to make the guest experience better, enable the guest to experience more, to do so more efficiently, and, essentially, to be able to customize, we think that these are very, very good signs for us. Because clearly guests satisfaction is very very important to the value equation for us, both how they spend their time when they are with us and (as) a determining factor in terms of whether they come back." Orlando Sentinel, February 12, 2014

Figure 1

Screen dump from Admin module in Adventure Resource Planner showing how the bookings are even spread out over the course of the day (yellow curve, unlike the typical bell curve (blue curve)
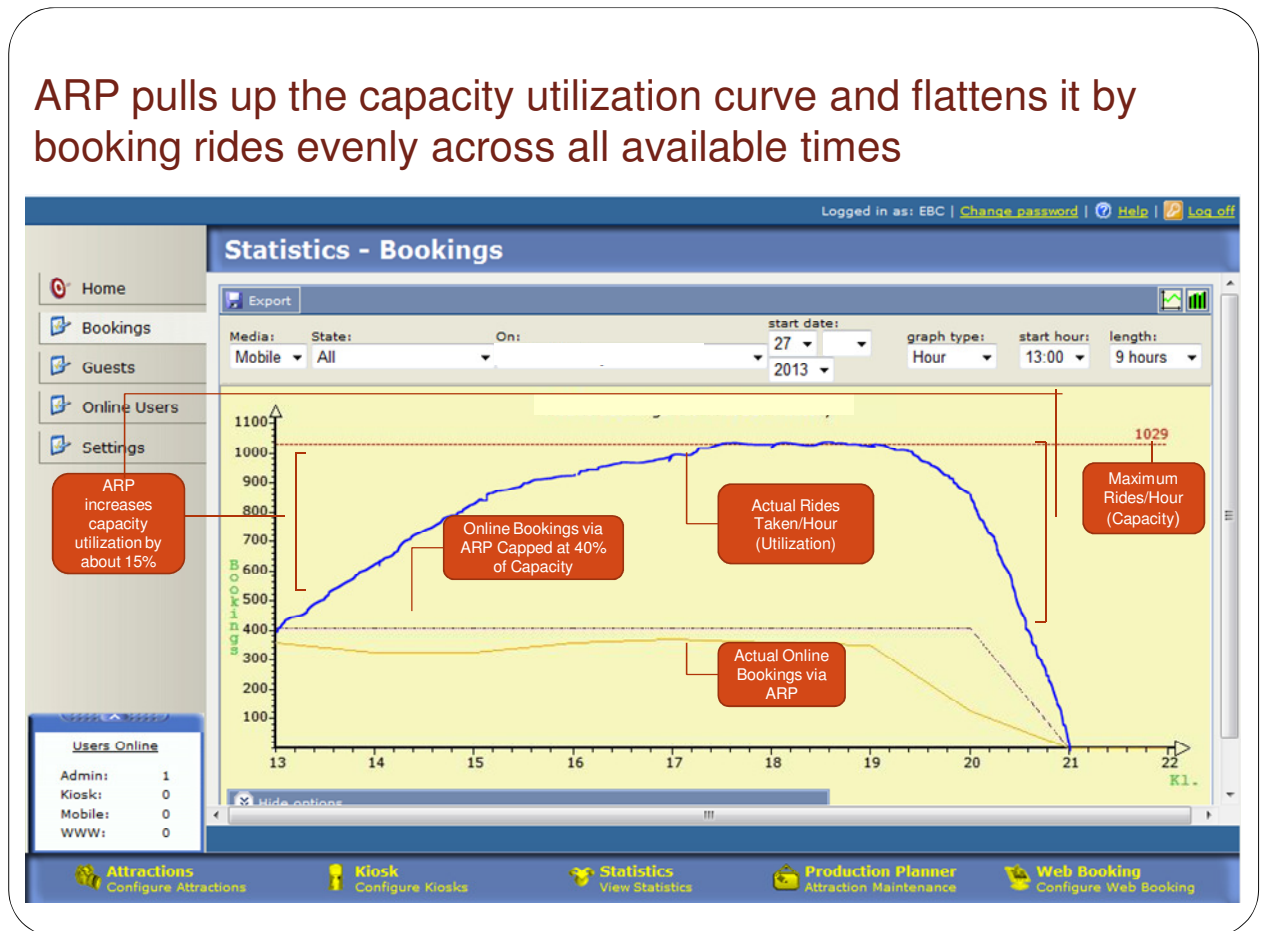
The virtual queuing systems cannot do this load balancing, since the guests' book one attraction at a time and then wait equally as long as they would have in normal standby line.

We believe this is a very important issue for any park to take into consideration. A Line Management system has to be able to spread out the guests and thereby increase rides per guests per day to be of true value for the park/operations management. And at the same time to quote Bob Iger "make the guest experience better, enable the guest to experience more, and, essentially, to be able to customize".

CASE: Fastpass in Disney – from virtual queuing to a reservation based system: FastPass+

FastPass - a virtual queuing system that was a revolution back in 1999 when Disney launched it. Since then, it has been implemented in all The Disney Parks globally, and about the same time Lo-q also launched their Virtual Queuing system.

FastPass+ is now official.
It happened January 7th 2013 when Tom Staggs, chairman, Walt Disney Parks and Resorts, released "Taking the Disney Guest Experience to the Next level" on his blog. See Tom Staggs blog
Throughout 2012 FastPass+ and MyMagic+ have been tested a number of times in WDW in Florida and they have been very successful. Otherwise FastPass+ would hardly have been made official.
Since the beginning of December 2013 all guests can use FastPass+ in WDW Parks for free.

Extract from Tom's blog:

"A major component of MyMagic+ is the new My Disney Experience website and mobile app, which gives guests planning their trip the latest information on all Walt Disney World Resort has to offer. We know that some people like to plan every aspect of their Disney vacation in advance while others like to plan very little, letting their day unfold spontaneously. No matter where guests fall in that spectrum, My Disney Experience gives them the flexibility to plan as much or as little as they'd like to create the exact Disney experience they want. **They can book dining and other experiences and reserve times for their favorite attractions, shows and more through an enhanced FastPass system, FastPass+.** Once they arrive, they can use their smart phones to spontaneously change their plans in the moment, exploring our parks at their own pace and getting the most out of their visit.

Linking the entire MyMagic+ experience together is an innovative piece of technology we developed called the MagicBand. Worn on the wrist, it will serve as a guest's room key, theme park ticket, access to FastPass+ selections, PhotoPass card and optional payment account all rolled into one. We've began testing certain aspects of MyMagic+ in Florida last month and the early reactions we've gotten have been fantastic.

This collection of tools is another step forward in the ongoing evolution of our guest experience, giving us even more ways to help friends and family create the unforgettable Disney memories that they want most. We'll be testing, adjusting ……."

Below are a couple of screens from the booking process in FastPass+, made by Erin Foster in December 2012 prior to her visit on MyMagic+ website:
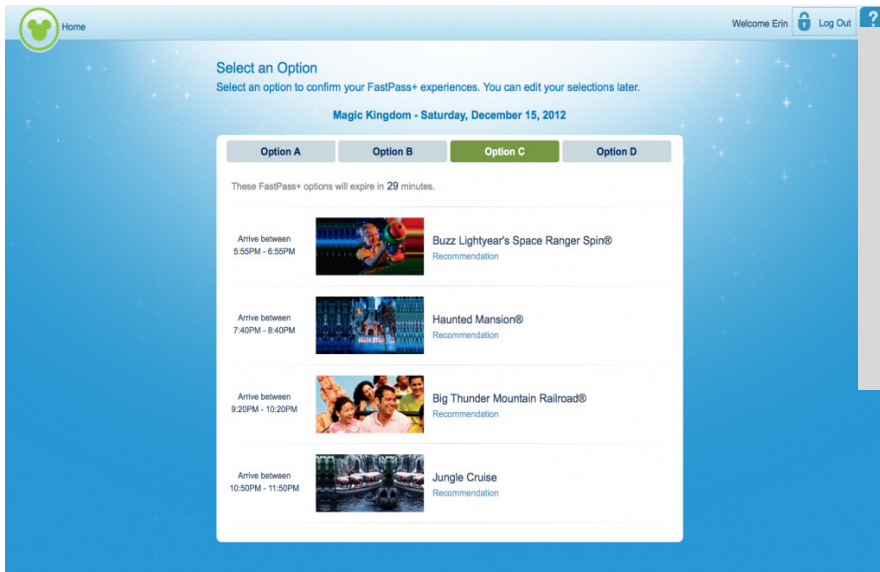
FastPass+ is:

- A reservation system and Itinerary-based
- Web – and Internet based
- A tool for the management to optimize rides per guest per day

You are initially presented with four sample Fastpass+ itineraries. These can be changed. Note that each time you log on, you have 30 minutes to make changes.
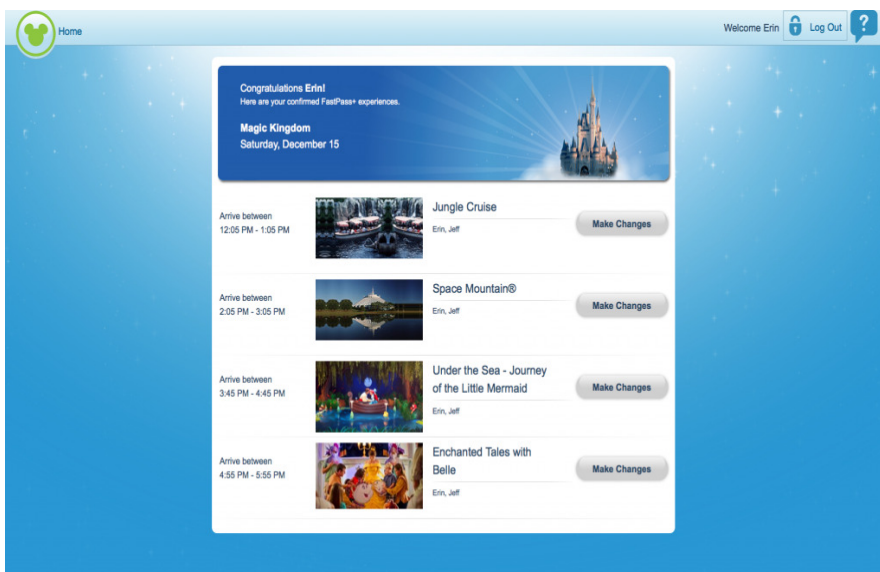
You can print your selections or have them emailed.

From blog.touringplans.com by Erin Foster, posted December 19th, 2012. Last testing round in December.

With FastPass+ guests will have the option to book and plan their visit before actually going to the park. When finished with the booking, they will receive an Itinerary to use as a planning and info tool for their visit. Because of that they will experience no wait at all. Our experience and knowledge since 2005 confirms that this is the right concept for a line management or Queuing system.

FastPass+ is based on the same concept as Adventure Resource Planner (ARP) from Entertainment Booking Concepts, which too is a reservation based system. ARP was first implemented in 2005 in Legoland Denmark.

The illustration below shows a booking done in the Demo version of ARP:

Visiting date: July 26, 2012
11:15 am to 11:30 am Ride 2; Kaya, Peter and Tina
12:00 am to 12:15 am Ride 4; Kaya, Peter and Tina;
12:45 am to 1:00 pm Ride 1; Peter and Tina (Kaya was not high enough to that ride)
1:30 pm to 1:45 pm Ride 3; Kaya, Peter and Tina.

See how it works for yourself!

Go to: http://bit.ly/try-our-demo

View the demo version of Adventure Resource Planner (ARP). It misses all kinds of logos, layout, look and feel. This is on purpose, since the ARP will be fully integrated with the website of the park. The functionality however is working, so you can select attractions, make reservations and receive emails, print out tickets and the itinerary.

Results and experiences with FastPaas+ in WDW

- 75% of resort guests book in advance and 25% of day guests(Orlando Sentinel May 6, 2014)

- Disney was able to accommodate 3000 extra guests per day because of MyMagic+/FP+ says Bob Iger.
  (Orlando Sentinel, February 12,2014)

- FastPass+ up 40% over old system, Disney says.(Orlando Sentinel May 1, 2014)

- "Disney says its research shows that travelers who do more preplanning spend more time on its property" Rasulo CFO Disney,(Orlando Sentinel May 6,2014)

- "Ensuring that visitors can visit the park they want on the day they want – even on the peak day of the year – also has a huge enhancement on the guest experience" Rasulo says.(Orlando Sentinel May, 2014)

- You don't have to tell little Johnny: "We will try and find Mickey Mouse later if we can. You can instead say, we have an appointment with Mickey at 1pm" (Tom Staggs Disney Chairman Parks and Resorts, About.Com Theme Parks 2014)

- "This is really the basis of the guest experience" explained Sinoff, Director of Growth Marketing Strategy, WDW. "What we are trying to do is give the guest a more personalized experience. It improves the experience for every single guest and allows them to pick and choose what they want to do. It's a complete new platform for the park" (Insidethemagic.net May 21, 2014)

- "Out of the gate FastPass+ has been utilized and appreciated by many Disney guests. Within a couple of hours of FastPass+ booking becoming available for the new Seven Dwarfs Mine Train more than 50.000 signups already." According to McPhee Disney. (Insidethemagic.net May 21, 2014

- The centerpiece of the MyMagic+ program is FastPass+.(Insidethemagic.net May 21, 2014)

- "When The Apple iPhone and iOS launched on June 29, 2007, we knew the world had changed forever-even if we didn't quite know how just yet. The Magic Band and MyMagic+ carry the same mind-boggling implications for the attraction industry. (Funworld, July 2014, page 64)

What is Adventure Resource Planner?

Adventure Resource Planner (ARP) is a fully web-based system using the Internet as a means of communication. The system can be accessed by guests and staff from any device with internet access (Smart Phone, PC, tablet, cell phone, RFID chip, etc.) and will fit the wishes from "planners" as well as "non planners" segments.

1: Activated Halloween Schedule Pass; 2+3: Itinerary and visitor data; 4: Ticket with QR code
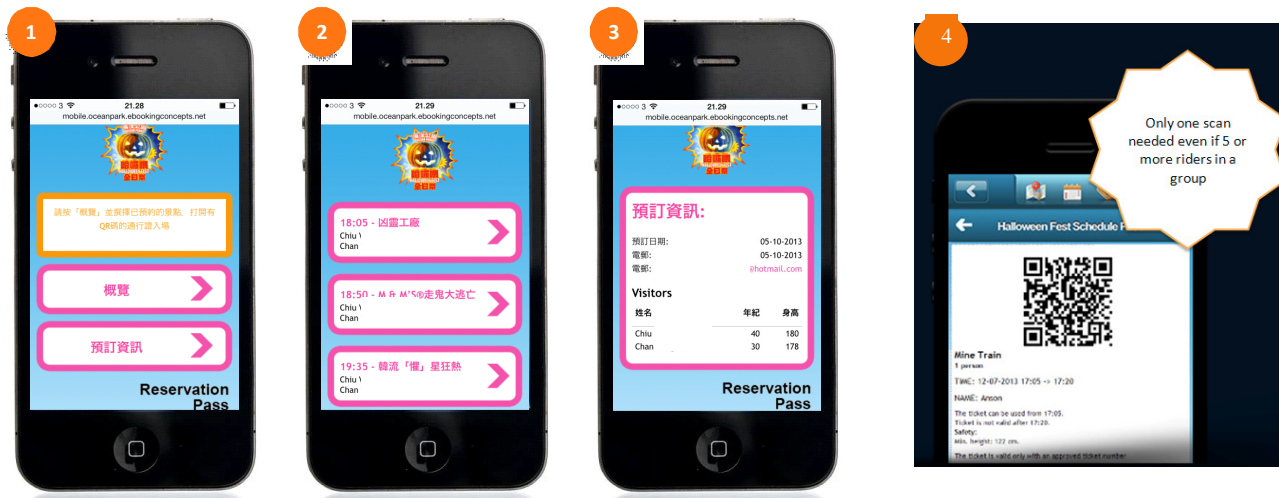
Ocean Park Hong Kong, Halloween Schedule Pass runs on Adventure Ressource Planner

In principle 100% of the capacity can be booked in advance or onsite in the park. Also, there is no variability since all time slots are distributed in a controlled manner by the system. (See the yellow curve in Figure 1 on page 5)

The guest's can also book ride by ride or book as you go onsite, but then the load balancing will be less.

Functional Technology i.e. guests can do more things at the same time. For example; guests wants to select day and time for a visit and be sure the attraction is open, have info about ride and attractions when making reservations and be sure not to promise a ride for a child that don't comply with the safety restrictions. All that and more a guest can accomplish in one transaction, when using ARP.

ARP is also a CRM/emarketing system to make a visit a personnel experience, if the guest is ready for that.

We are of course professionally intrigued by the fact that Disney, which is a very professional and outstanding company, has chosen a reservations concept/model for their FastPass+, which is in line with our Adventure Resource Planner.

NO Queues-More Rides-More Revenue
www.ebookingconcepts.net