

## Pestana Equador

### summary

**Grupo Pestana** is the largest Portuguese group operating in the tourism sector, managing three hotel brands ([Pestana Hotels & Resorts](#), [Pousadas de Portugal](#) and [Pestana Collection](#)) composed of 87 hotels worldwide with more than 9300 rooms.

Since 2010, **Grupo Pestana** and |create|it| worked together in the implementation of several websites, including a web and mobile portal for reservations, voucher sales, hotel and services information, in addition to mobile apps/sites for iOS and Android. There are also web sites for the Loyalty Programme ([Pestana Priority Guest](#)) and Agencies/Tourism Professionals. All sites were developed using SharePoint 2010 WCM, and the new online strategy represented an **increase exceeding 30% in the number of reservations**, for a total of 17.5 million euros in direct online sales and over 3 million visitors in 2013 alone. More than 70% of the bookings come from international customers, supported on a multi-language strategy that includes 8 languages.

At the end of 2014, **Grupo Pestana** in partnership with |create|it| decided to go one step forward, and design and implement a new version of its online presence, focused on a key vision: **creating the best and most innovative hotel chain website in the world**. In terms of technology, this meant using both the new SharePoint 2013 combined with the power of the Azure platform, working together to support a further increase in revenue and business value.



### about |create|it|

Founded in 2001, |create|it| is a company that strives for excellence in every project executed. In 2014, it earned the **PME Excelência** award for the fourth year, awarded to the best SMEs operating in Portugal.

A **Microsoft Gold Certified Partner** with a clear focus on Microsoft technologies, specifically SharePoint, BizTalk and Windows Azure, it was the first partner in Portugal to attain the **Gold** level in the **Content Management** and **Application Integration** competencies. It has also been awarded by Microsoft Portugal as **Partner Ambassador of the Year** (2014), **Solutions Partner of the Year** (2013), **Portals & Collaboration Partner of the Year** (2011).

In 2012, |create|it| won the **European SharePoint Community Award for Best SharePoint Public Website** and in 2013 and 2014, won the **European SharePoint Community Award for Best SharePoint Search Solution**.

All the members of the team are either **Microsoft Certified Professionals** or **Certified Project Managers** by the **International Project Manager Association** (IPMA) and a few are also **Certified Scrum Masters** by the **Scrum Alliance**. Most of the team has a blog at <http://blogit.create.pt>.

For more information about the company and other projects, visit  
[www.create.pt](http://www.create.pt)

## the challenge



**Creating the best and most innovative hotel chain website in the world** is an ambitious Vision, and this Vision was refined in a set of goals for project Pestana **Equador** - the codename of the project was inspired by the tropical location of Pestana's Hotel in São Tomé :

- Centralized Content Management across all hotel chains
- Increase in User Conversion
- Flexibility creating new websites
- Elasticity and scalability
- Geo-distribution – to better reach the worldwide audience
- Increase productivity, both in development and in content management

## Centralized Content Management

One of the lessons learned from the previous versions of the websites, is that the new solution should be designed such that the Content Management team can manage the contents of all the different websites in a single unified backoffice using a common information schema. This team is highly productive when using features such as List Data Sheet edit or on massive uploads of content with Microsoft Access, so those were keys features to retain.



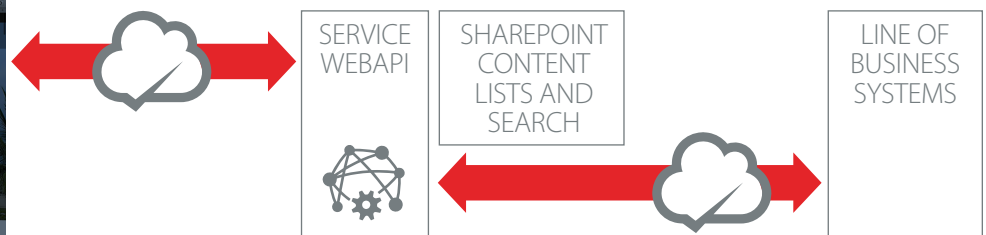
## Increase in User Conversion

This is effectively the main goal for the new websites, because it's the increase in User Conversion in the reservations that sustains an increase in revenue. The implemented solution features a **new and unified web design** for all three hotel brands, which was tested by users in **Usability Testing**, and uses a **recommendation mechanism** based on past user behavior and the cross-selling opportunities between hotels of the different **Grupo Pestana** brands.

## Flexibility creating new websites

In the previous version, the websites were developed independently of each other and coupled to SharePoint 2010, sharing some common backend components for aspects such as integration, reservations and payments. With the new version, one of the goals was **increasing the flexibility in creating new websites**, and this led to an architecture where most of the developments are shared between the websites – including an integrated reservation process and the integration of third parties such as travel agents or social networking apps, both front-end and backend code, while still allowing for site-specific contents/features.

This goal led to a design that separates the web front-end from SharePoint and other relevant on-premise systems which were to be kept, as illustrated bellow in a simplified view.



Azure  
WebApps

Azure  
Data  
Center

SharePoint 2013  
Virtual Machines  
on Azure IaaS

Azure  
Virtual  
Network

On-Premise  
systems

The contents stored in SharePoint and the back-end business systems are exposed to the Websites using a single unified WebAPI service layer. The websites are implemented as Azure WebApps using ASP.Net MVC5, consuming the WebAPI layer for contents and transactions such as reservations. One of the reasons for this separation has to do with Elasticity and Geo-Distribution, mentioned in the following sections.

The websites were created with several modules, supporting not only the **ability to share code while allowing for brand-specific features and contents**, but also the **automatic provisioning of websites via backend configurations in SharePoint Lists**. The brand-specific features can also include overrides of common features.

## elasticity and scalability



One of the reasons for the separation of the websites from inside SharePoint 2013 was the ability to use the **automatic scaling and elasticity features of Azure**. Scaling an Azure WebApp can be achieved with simple configuration, not touching the SharePoint servers. To protect the SharePoint 2013 servers from access peaks, a cache strategy was setup that makes its best to avoid accesses to the backend, effectively serving as an in-memory database. In reality, only transactional requests (e.g., hotel availability searches) go through to the backend synchronously. One of the additional benefits of this approach is also – obviously – the Pay-Per-Use billing model, which allows **Grupo Pestana** to scale up or down the infrastructure according to the current load/desired performance.

## geo-distribution



**Grupo Pestana** has hotels in several countries worldwide and receives bookings from all geogra-

phies. For some of these, a need was felt to improve the access times. Geo-distribution was the obvious way to address this, and several complementary strategies were followed:

- Separation of frontend websites from SharePoint backend, due the complexity of the SharePoint farm provisioning in different data centers – **web sites can be easily replicated in different locations**, and are indeed replicated in data centers in North Europe and Brazil;
- Use of Azure Traffic Manager to **select the website with the best response time**, according to the physical location of the user and the network latency;
- Use of Azure **CDN to distribute website's static assets** such as images.

## increase productivity



The key factor in increasing productivity was the use of **Responsive web design**, with a single development targeting desktop/laptop, tablet and mobile resolutions. This allowed the existing mobile web sites and apps to be retired and greatly decreased the time-to-go-live of new features.

Other factors, targeting both the Content Management and Development teams were the following:

- Usage of **single unified structure of Lists** in SharePoint 2013 for content management, with Data Sheet view for quick edit;
- An Image Resizing component increases productivity, **avoiding the need for the Content Management Team to upload several different image resolutions**;

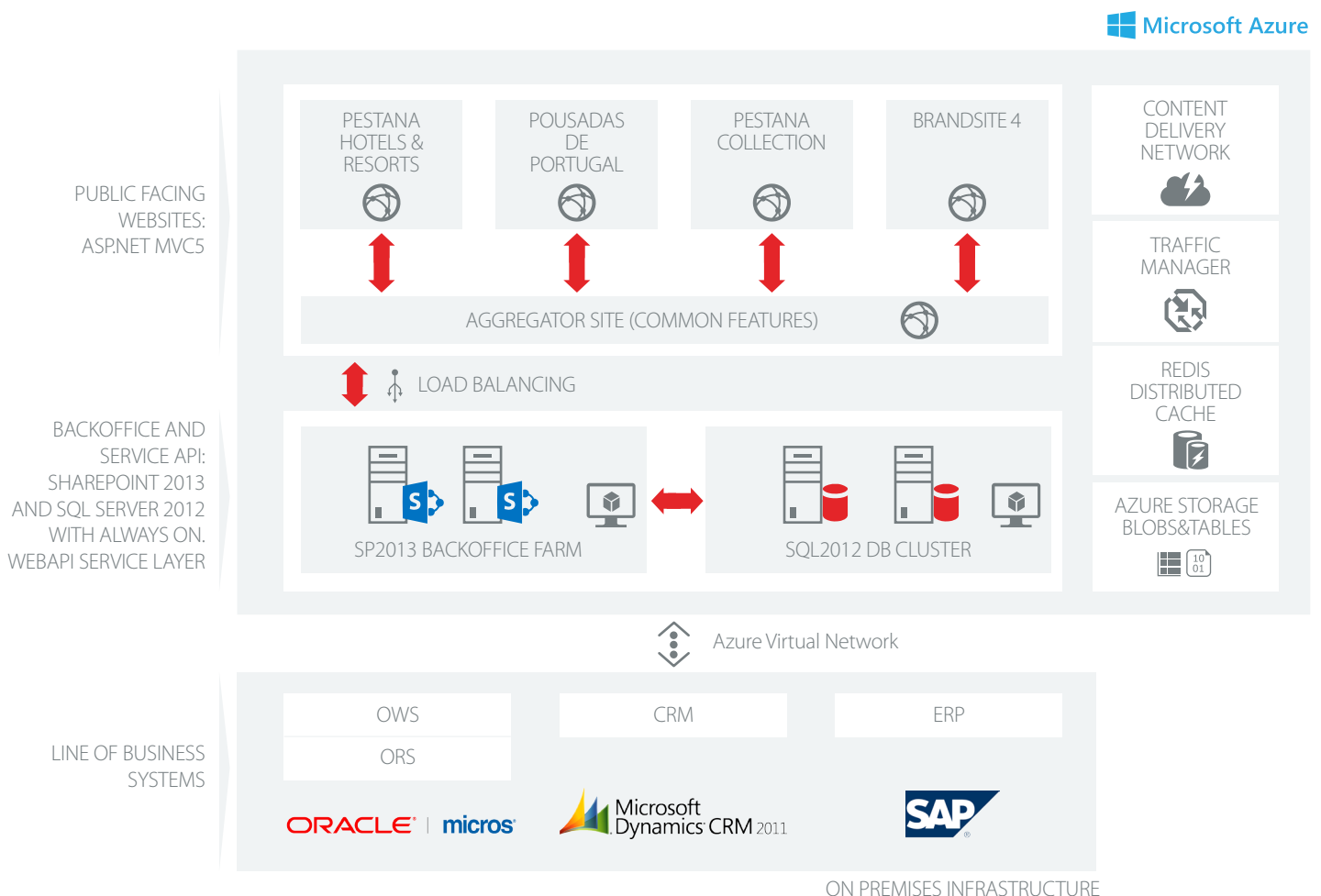
- **End-to-end correlated logging**, unified in a single Azure repository, thus allowing tracking of the requests across all the application layers and avoiding the need to check multiple log files in multiple servers;
- Simplified deployments – while new developments still have to be deployed to the different websites in different Azure regions, **most deployments simply consist of copying up the new versions of files**, with no need to package code into solutions;
- Code Generation – **the API that accesses the SharePoint Lists is fully generated** using custom CodeSmith Generator's templates. This saves a huge amount of time hand-coding repetitive data-access tasks and avoids errors.

## the solution



The following diagram describes summarily the **Pestana Equador** solution from a **physical viewpoint**. The right column includes several platform services from Azure that were used. In the bottom you can see the three main systems that remain hosted on-premises: Oracle Micros (hotel ERP, for reservations), Microsoft CRM (for client loyalty information and vouchers) and SAP (for invoices). These are reachable using a permanent LAN-to-LAN VPN from Azure into a Data Center hosted in Lisbon, Portugal.

**Figure:**  
**Physical architecture of the Pestana Equador solution.**





the end result



The following images illustrate the final look of the websites

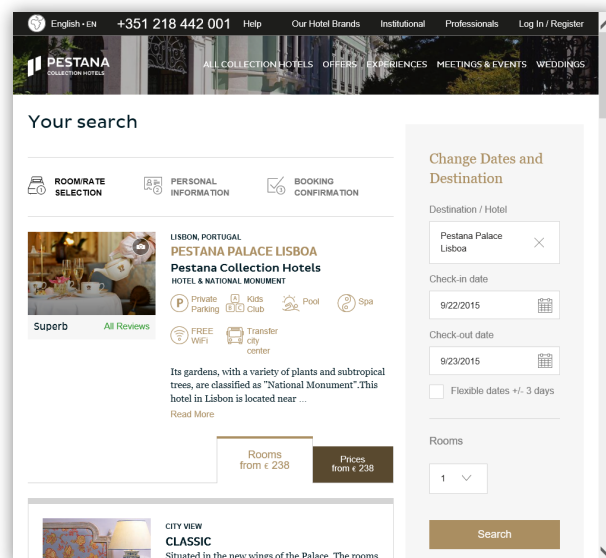
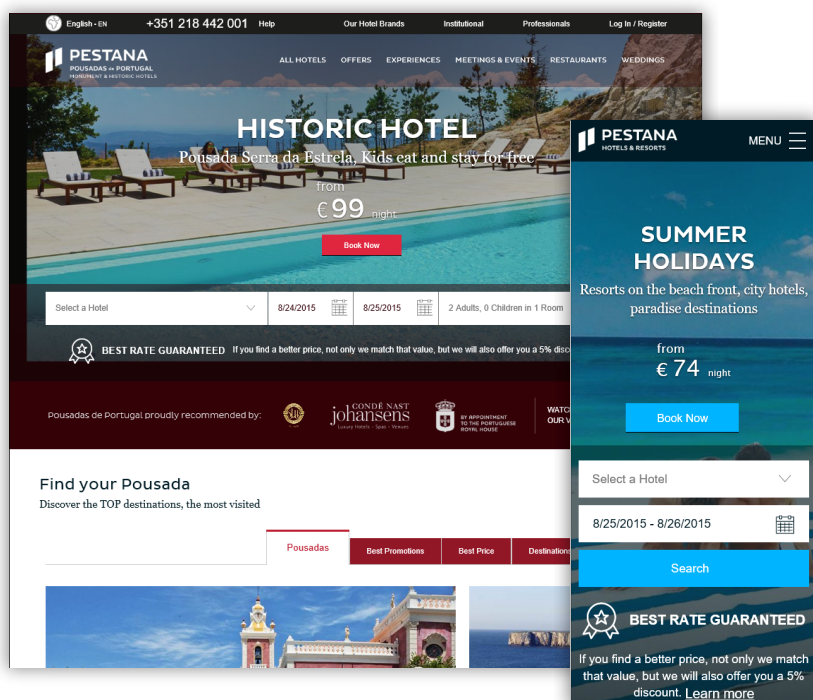


Figure:

Availability search results for the Pestana Collection brand. The reservation process is common to all the three brands, but with a distinct theme, and features a streamlined reservation process. Search results are obtained from an on-premise system.

Figure:

Pousadas de Portugal brand homepage and Pestana Hotels & Resorts in mobile resolution – responsive web design. Each brand has a different theme and specific features.

results



**Pestana Equador** went live on May 19, 2015. A complex solution, it has been undergoing post deployment stabilization and almost weekly evolutions since that date, and seen a **steadily increasing number of reservations**.

In technical terms, the new architecture for the solution is proving to have been an **excellent choice**. The hybrid integration is seamless and with constant good quality; the use of the cache,

CDN, and the running in two data centers have allowed end-user latency to decrease significantly from international locations; and the use of ASP.NET MVC5 to develop the websites coupled with much simplified deployment processes and responsive web design have both decreased time-to-go-live of new developments, and all but eliminated glitches associated with the deployment process.

The months ahead will still see the steady addition of new and innovative features, including a Voucher Store. You can check the results for yourself, and – why not? – book your stay for your next vacations, on **www.pestana.com**. You can also learn more about |create|it| at **www.create.pt**.