

IoE-Driven Mobile App Improves Visitor Experience for Fernbank Museum of Natural History



EXECUTIVE SUMMARY

Objectives

- Make museum a more dynamic educational and social location, while improving overall experience of museum visitors
- Create engaging technological interface between museum and its guests

Strategy

- Take cross-functional, interdisciplinary approach to developing Wi-Fi network and mobile application

Solution

- Interactive, museum-branded mobile application delivers targeted content to museum guests through a high-density web of Wi-Fi connectivity
- App also provides museum officials with useful data that guides distribution of customer-segmented promotional content

Impact

- Density of Wi-Fi availability throughout museum enables additional exhibit content
- Has allowed museum to easily deploy hardware behind the scenes
- Engaging guests via their personal devices encourages a more in-depth learning experience

Background

In January 2014, Cisco released the results of an in-depth analysis of the economic benefits of the Internet of Everything (IoE) for the public sector. Cisco's model revealed that some \$4.6 trillion in "Value at Stake" would result from the adoption of IoE capabilities across 40 key public sector use cases over the next 10 years, including smart water, smart buildings, smart energy, smart parking, and more (<http://bit.ly/1aSGlzn>).

As a next phase of its analysis, Cisco engaged Cicero Group, a leading data-driven strategy consulting and research firm, to undertake a global study of IoE capabilities across these 40 use cases – how the best public sector organizations are "connecting the unconnected," as Cisco terms it. To that end, Cicero Group conducted interviews with dozens of leading public sector jurisdictions – federal, state, and local governments; healthcare organizations; educational institutions; and non-governmental organizations (NGOs) – to explore how these global leaders are leveraging IoE today.

The research examined real-world projects that are operational today, are being delivered at scale (or through pilots with obvious potential to scale), and that represent the cutting edge of public sector IoE readiness and maturity. The aim of the research was to understand what has changed in terms of the jurisdictions' people, processes, data, and things, and how other public sector organizations can learn from (and replicate) the trail blazed by these global IoE leaders. In many cases, these jurisdictions are Cisco customers; in others, they are not. The focus of these jurisdictional profiles, therefore, is not to tout Cisco's role in these organizations' success, but rather to document IoE excellence, how public sector entities are putting IoE into practice today, and to inform a roadmap for change that will enable the public sector to address pressing challenges on multiple fronts by drawing on best practices from around the globe.

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About Fernbank Museum of Natural History

Fernbank Museum of Natural History, a private nonprofit located in Atlanta, Georgia, opened its doors to the public in 1992 with a mission to inspire life-long learning of natural history through immersive programming and unmatched experiences to encourage a greater appreciation of our planet and its inhabitants. In 2013, Fernbank teamed its ecological and prehistoric exhibits with cutting-edge technology to make the museum experience more interesting and relevant to a technologically savvy public.

With the aid of corporate sponsors and private donations, Fernbank created an interactive museum-branded mobile application. The app delivers targeted content to museum guests through a high-density web of Wi-Fi connectivity. In addition to guiding and educating the user, the app provides museum officials with useful data that guides the distribution of customer-segmented promotional content.

Jennifer Grant Warner is the chief programming officer of Fernbank Museum of Natural History. Serving as project manager on the museum’s recent technological upgrade, Ms. Warner worked closely with Chief Technology Officer Dana Harvey and the museum’s educational team, as well as with corporate partners, to create an engaging technological interface between the museum and its guests.

Prior to her association with the Fernbank museum, Ms. Warner worked as a manager in community development for the Metro Atlanta Chamber of Commerce, and in governmental affairs for the Kentucky Chamber of Commerce.

Objectives

Desiring to expand its attractiveness as an educational and social location, in 2012 Fernbank sought to upgrade its technical infrastructure by implementing free, high-density Wi-Fi capability throughout the museum. Teaming with outside partners, Fernbank explored different Wi-Fi options. Fernbank now has installed a complete Wi-Fi network that provides free Wi-Fi access throughout the museum and in key outdoor spaces. Accessible to museum patrons and staff, the network has been well received by both groups. Patrons enjoy mobile Internet access, while staff (particularly the technology office) like being able to deploy new technology and exhibit capabilities that the wireless network makes possible.

Working with corporate partners, Fernbank also decided to expand the project beyond the Wi-Fi network to include an interactive mobile application that provides a custom-built museum guide for visitors as they move throughout the exhibits. The app is downloadable via the museum’s website or via the iTunes and Google Play stores. It includes targeted educational content, games, a museum map with directional service, pictures, and exhibit information. It also has the capability to provide event notifications, vendor locations, and discount coupons. The goal for the app, says, Ms. Warner, was to “really connect with the guests the moment they set foot on the property.”

“The team [took] a cross-functional, interdisciplinary approach. Our chief technology officer was involved, along with members of his team, but also our education team, because we came up with ways to utilize the technology from an educational content delivery perspective, as well as with marketing, because this was now a new way for us to connect with our guests before they step into the building. It really becomes another branding tool for us as well.”

Jennifer Grant Warner,
Chief Programming Officer,
Fernbank Museum of Natural History

Strategy

“The team [took] a cross-functional, interdisciplinary approach,” Ms Warner explained. “Our chief technology officer was involved, along with members of his team, but also our education team, because we came up with ways to utilize the technology from an educational content delivery perspective, as well as with marketing, because this was now a new way for us to connect with our guests before they step into the building. It really becomes another branding tool for us as well.”

One of the first questions Ms. Warner addressed during the planning phase of the project was how to provide the mobile hardware for the application. She and her team weighed the option of renting devices to visitors, but eventually settled on a “bring-your-own device” approach. “From an operational standpoint, we didn’t like getting into the business of checking out devices and having to keep someone’s driver’s license,” she said. The decision to rely on visitor-supplied hardware was also supported by research from the American Alliance of Museums, which predicted that a sufficiently high percentage of attendees come equipped with smartphones. According to Ms. Warner, this has proved to be the right decision.

Ms. Warner indicated that the museum originally chose a non-branded application that provided general information about the exhibits, but it was dissatisfied with the results. “One of the things we know was not having a branded app the first time really affected us. People had a harder time finding it,” she says.

The app was replaced with a customized and branded version, the Fernbank Museum Application, available for free download at the museum and through other application vendors. The new app includes the museum’s logo and customized content for the displays, and is far more interactive. It allows for easy modification, including updated promotions as exhibits and IMAX features change.

One unforeseen aspect being addressed as the application is further developed is what Ms. Warner describes as the “heads-down” impact of integrating a mobile application with the traditional museum experience. Creating an app that both expands learning and draws the attention of patrons to the exhibit before them is the challenge. “It’s finding that balance of in-the-device, but also within the context of everything else going on around them. We can’t have them too much into ‘zombie mode,’” she said.

Solution

Ms. Warner began with a modest goal for what became the technological transformation at Fernbank Museum: free public Wi-Fi. “It’s what people are expecting when they come as guests,” she explained, “but also we are a private event facility. That’s an important business unit for us here at the museum. A lot of those clients were expecting that, and it was hurting us if we didn’t have it.”

As she explored the option of expanding the project beyond a network of limited access points, Ms. Warner consulted with various museum board members about how Fernbank could leverage a Wi-Fi network to get corporate donors excited about the efforts of the museum.

After attracting the attention of multiple technology companies, the scope of the project grew rapidly. In addition to museumwide Wi-Fi, Ms. Warner began researching development of an interactive app to create an avenue of communication between the museum and its guests.

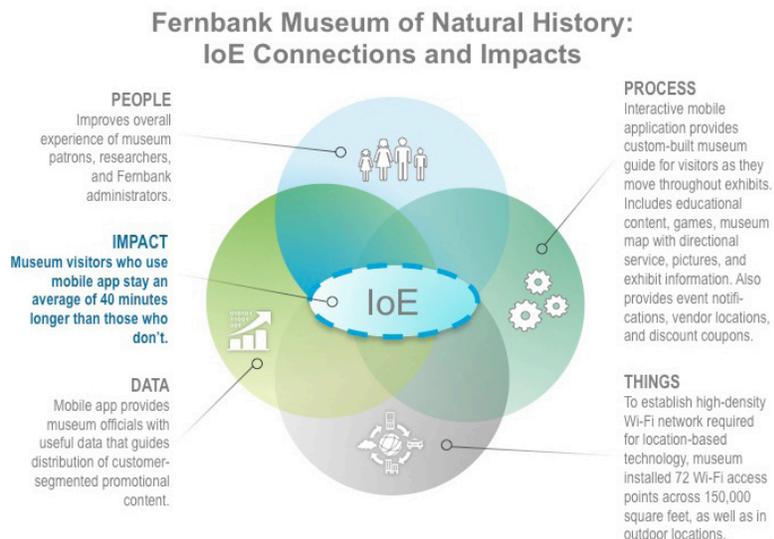
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To establish the high density Wi-Fi network required for effective location-based technology, the museum installed 72 Wi-Fi access points throughout the 150,000 square feet of museum, as well as in key outdoor locations. Hardware installations were completed after-hours to avoid disturbing daytime traffic, and access points in public areas were designed and painted to blend in naturally with background settings throughout the museum.

In concert with deploying the Wi-Fi network, Fernbank also worked on developing the Fernbank Museum App. Because Fernbank is an ecologically friendly establishment that promotes green practices, Ms. Warner says that reducing consumer dependence on paper maps was a top priority. However, she recounts that throughout the design of the project, she and her team examined how best to develop the software beyond a simple mapping application into a fun and engaging experience for guests. With this perspective, the Fernbank Museum App matured into both a “virtual concierge” for guests and a messaging and data platform for the museum.

Ms. Warner described how one app activity, the Paleontology Journal, is particularly well-designed to hold the interest of visitors. “It gives guests special experiences and special content that they can’t find anywhere else on our web or even in the displays that you see on the floor,” she explained. “It’s exclusive to the device. It’s a special tour that takes you through different parts of the museum, and ties them together with a thread that you wouldn’t see otherwise. It has some games built in, some multiple-choice quizzes [and] an exclusive video. It’s a way for us to promote what’s going on in the building.”

Figure 1. Fernbank Museum of Natural History: New and Better Connections.



Source: Cisco Consulting Services, 2014

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Jennifer Grant Warner,
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Impact

Ms. Warner points to a number of benefits that the new Wi-Fi network provides. First, she indicates that the density of Wi-Fi availability throughout the museum enables additional content in the exhibits. “We’ve added some kiosks in one of our hands-on exhibitions, and we are drawing the data through the Wi-Fi network,” she said. “That’s really been helpful for us in terms of thinking about how we can do our exhibitions going forward. Not having to hardwire everything is great.”

Additionally, Ms. Warner indicated that the Wi-Fi network has allowed the museum to easily deploy hardware behind the scenes (in staff work rooms or meeting rooms, for instance). Warner further admits that wide Wi-Fi availability is a necessity in today’s connected world, both as a convenience to guests who expect it, and as a crucial avenue for museum administration in planning staff coordination, event management, education, and advertising.

Ms. Warner cites a number of benefits from the app development as well. For example, the app allows the museum to track location data of its visitors. By analyzing guests’ progress through the app’s journal function, administration can identify both dwell times at specific exhibits or locations, as well as overall time spent in the museum.

Ms. Warner describes how engaging guests via their personal devices encourages a more in-depth learning experience, and results in longer visits. The app creates a dialogue with guests from the moment they arrive, guiding them through the museum and presenting educational information in a way that encourages in-depth exploration of the museum.

Effective analysis of visitor data is also a valuable tool for management. Ms. Warner says that data analysis from app users provides a heat map of visitor patterns, revealing popular attractions as well as those needing more attention, “It can help us with our logistics planning and seeing inside, for instance, our children’s exhibition,” Ms. Warner explained. “We keep staff up there that serve as facilitators, because it’s a very highly interactive hands-on exhibition, so we really have to monitor the usage and the traffic. I think, anecdotally, I know what’s going on with the crowds in there, but now this gives me even more evidence, and actual data points, to see that ebb and flow throughout the day of people in that exhibition.”

Ms. Warner also indicated that the museum plans to use the app to push out promotions for upcoming attractions, as well as notifications when an IMAX feature or other event is about to begin. This would allow targeted communication with patrons in the museum, as well as broader communication with those who are outside the museum but who have downloaded the app. For outside visitors, the app could be used to highlight an upcoming exhibit and to encourage repeat visits. For those already in the museum, the app could send coupons to visitors’ mobile devices to drive traffic to the gift shop or café when business is slow.

Ms. Warner sees the promotional potential of the free branded app as a valuable tool for the museum. With the Fernbank icon appearing on each user’s mobile device, it would increase the visibility of the museum upon downloading, and provide an instant avenue to museum information for users.

Ms. Warner considers the replacement of the original application with a branded app as crucial to the success of the project, and downloads increased with the new version.

Lessons Learned / Next Steps

Ms. Warner considers the replacement of the original application with a branded app as crucial to the success of the project. Other improvements in the Fernbank Museum app include an increased ability to collect visitor data, along with the marketing advantages of icon visibility.

Ms. Warner says the full capacity of the project to impact visitor behavior and encourage attendance and engagement is still being developed. Future plans include the creation and delivery of new educational and promotional content for the app, an essential step to keep visitors interested in repeat attendance. Ms. Warner advises, "If you are working through an app, you've got to keep that fresh and interesting or people aren't going to use it."

Ms. Warner is enthusiastic about the future potential of the museum's new upgrade, but advises prudence in choosing areas of development. "I still think we're in the early stages, but there's a lot more [to come], and it's so robust," she explained. "You can think about all the uses of how it could be done, but as a nonprofit, you really have to prioritize and say, 'Okay, what's going to make the most sense for our situation?' It's important to find the right balance in terms of where to use the technology, and not to just use it for technology's sake."

More Information

For more information, please visit <http://www.fernbankmuseum.org> and <http://www.fernbankmuseum.org/visit-fernbank/fernbank-museum-app/>



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