Nominee: Schneider Electric

Nomination title: Schneider Electric Micro Data Centre provides Sagrada Família with peace of mind for reliable IT service provision

- **What was the driving force behind the project – what business or technology challenge needed to be addressed?**

Customer Challenges at the Sagrada Familia included:

- **Expand data centre space provision**
- **Replace aging equipment**
- **Accommodate ongoing construction by relocating data centre prior to 2026.**
- **Comply with internal security standards**
- **Minimize system latency for admissions, transactions, and security**
- **Meeting critical project timelines**

Barcelona's Sagrada Família church is a UNESCO World Heritage Site. It attracts 3.5m tourists each year, making the basilica amongst the top 10 most visited monuments globally. A complication is that the church is still under construction, so there is a pressing need to ensure safety and security to both building workers and tourists who are on the site simultaneously.

The challenge to Sagrada Familia was to replace an existing small server room with a more robust data centre, so that it could more effectively manage security and access control for visitors that come to the site. Since the new data centre was to be situated on an active building site, it needed to have the facility to be relocated as the church construction progresses to its completion in 2026.

Some critical and data intensive applications such as image collection and processing, require reduced latency, enhanced bandwidth and processing speed that could not be achieved through servers hosted in a third-party facility. Therefore, when evaluating different alternatives, Sagrada Família dismissed outsourcing as a viable option.

The selection of a prefabricated data centre makes it easy and cost effective to add on-site computing capabilities in specific areas and constrained spaces.

- **How did the solution address the challenges and were there any particularly innovative aspects that made it stand out?**

In 2013, IT strategy was reviewed at Sagrada Familia and the requirement for a new and robust data centre was identified to replace an aging on site IT room. The new data centre is mission critical, controlling data collected from security cameras placed around the site's perimeter, as well as supporting a new digital ticketing, validation and baffle gate system to improve the visitor experience at the church.

The new facility also hosts day-to-day enterprise IT operations and applications such as email. A further benefit of the new facility is that it enables Sagrada Familia to utilise emerging technologies such as virtual reality (VR), augmented reality (AR) and 3-D printing as part of its building, restoration and maintenance activities.

As the building is an ongoing and complex construction project, the installation of a fixed permanent data centre within the site was not an option. The ability to relocate the data centre as the construction work progressed was an essential feature for any new IT installation.

To meet these particular needs, Schneider Electric designed and manufactured a customized state-of-the-art prefabricated micro data centre. The new and resilient data centre was factory engineered, built and tested before being transported to site where it required minimal installation and services.

- **What major challenges were faced during the project and how were they overcome?**

To avoid the need for extensive installation and engineering services on what is ostensibly a building site, the Schneider Electric prefab data centre module was delivered with the IT racks, UPS, power distribution, cooling and management pre-installed and ready for deployment.

To meet the need for mobility, the module enclosure was designed for durability and security, with electrical and mechanical connections that can be easily disconnected for mobility services for the data centre module and interior infrastructure components.

As the data centre is located in the middle of an ongoing construction site, reliability and ruggedness were important concerns. The equipment in the data centre needs to be protected from dust and other contaminants, and to be resistant to significant vibrations. The prefabricated data centre has a vestibule with air curtains to avoid cross contamination between the external environment and the IT space. It also has shock-absorption systems on the four corners of the structure. There is significant vibration on-site due not only to Sagrada Familia's construction works but also to the works for a nearby tunnel for the Spanish high-speed rail network.

- **What tangible benefits has the organisation seen as a result of the project's implementation?**

Fernando Villa, CIO at Sagrada Familia says that the Schneider Electric micro data centre provides "peace of mind" that all IT services will operate reliably at all times, with no break in services to either its internal or external customers.

The portable nature of the micro data centre allows it to be moved as and when required to accommodate the ongoing construction process. The non-ISO prefab modules have been specifically customised for this project (Height 3,6m x Width 2,15m X Length 7,5m) to allow for this relocation into space constrained locations such as the basement of the basilica.

Another key advantage of the prefabricated approach was speed of delivery. The Schneider Electric solution reduced delivery time from ten to four months.

The modular data centre contains some room for upgrade and expansion within the existing design. There is enough space for future expansion of the cooling units. Currently, there are 3+1 overhead DX cooling units of 17kW each, upgradeable to 5+1 for a total cooling capacity of 85 kW in N+1. Also the UPS and Switchgear design is of modular construction, currently supporting 48kW in N+1 and upgradeable to 80kW in N+1.

In addition to the prefabricated data centre build, Schneider Electric will also provide ongoing maintenance services for the data centre to help maintain its conditions. These services include break and fix support, remote monitoring and special conditions on spare parts, travel and labour for corrective services.

Why nominee should win

- **Facilitated a very necessary IT upgrade to a world renowned UNESCO Heritage site without disrupting the ongoing business of the church**
- **Enables a mix of day-to-day and emerging technologies to be reliably provisioned with high availability to support both building work and an enhanced visitor experience at one of the world's most visited monuments**
- **Provides peace of mind for the CIO!**
- **Delivered cost-effectively in a short time frame, meeting the requirement to be secure, reliable and relocate-able**