



# Enhancing Connectivity for a Smarter Museum Experience

MUSE – Trento Science Museum, a flagship institution for science education in Italy, is more than just a museum — it's a living platform for discovery, learning, and innovation. Designed by world-renowned architect Renzo Piano and opened in 2013, MUSE spans over 19,000 m<sup>2</sup> and features interactive exhibitions, multimedia installations, and hands-on activities. Its mission to inspire young minds and champion sustainability relies heavily on digital engagement across indoor and outdoor spaces, as well as at its three satellite locations across northern Italy.



## The Challenge

From the beginning, MUSE utilized a traditional controller-based Wi-Fi setup, evolving from Wi-Fi 4 to Wi-Fi 5, and operating over 150 access points. However, the infrastructure struggled to keep up with modern demands:

- Overcrowded AP density led to performance bottlenecks..
- Support for legacy applications came at the expense of user connectivity.
- Outdoor areas such as parks and greenhouses lacked stable connectivity.
- Remote sites in Ledro, Predazzo, and Viote required centralized, cloud-based management. More than 11 SSIDs coexisted across multiple networks, many not directly managed by MUSE.

As digital programming and visitor expectations grew, MUSE needed a solution that could reduce AP clutter, streamline network management, and reliably deliver Wi-Fi 6 connectivity across diverse spaces and users.



## The Solution

MUSE partnered with Gread LAB, the IT division of Gread Elettronica Srl, to redesign and implement a future-ready wireless network using Cambium Networks technology. The objective was to decrease hardware complexity while expanding performance and functionality.

Deployed Cambium Networks Solutions:

### **60 Indoor Access Point XV2-2X Wi-Fi 6**

- Dual-radio 2x2 Wi-Fi 6 design
- 1.77 Gbps aggregate throughput
- EasyPass integration with Google Workspace and Microsoft Azure

### **7 Outdoor Access Point XV2-2T0 Wi-Fi 6**

- Ruggedized for high-performance in parks and greenhouse environments

### **Cloud-based cnMaestro™ X Management Platform**

- Centralized, multi-site, cloud-native management
- Application visibility, EasyPass captive portal, and RADIUS functionality

## The Results

The transformation yielded significant improvements::

- 33% Reduction in APs: From 150+ to just 67 units, thanks to superior signal propagation and design.
- Instant Deployment: Preconfigured APs via cnMaestro enabled quick rollout without interrupting daily operations.

“A modern museum must rely on high-quality, efficient, and easy-to-manage connectivity in order to offer both visitors and internal users a complete and rewarding experience. The overall solution implemented by GreadLAB has effectively met these needs.”  
 — Vittorio Cozzio, IT Manager, MUSE

- Improved Performance Across Indoor and Outdoor Spaces: Including seamless roaming within the museum's central atrium, "The Big Void", and outdoor event areas.
- Multi-Site Network Control: Unified Wi-Fi management now spans four locations through cnMaestro, streamlining configuration, updates, and security policies.
- High User Load Capacity: On average, 120–150 daily users connect concurrently, with peak loads of 500+ during special events.

### The new architecture includes:

- 18 WLANs and 9 VLANs organized into 19 Wi-Fi groups
- Eduroam access for academic guests
- EasyPass integration for guest access via AzureAD, GSuite, or vouchers

MUSE's upgrade to Cambium Networks not only streamlined its technical operations but significantly improved digital experiences for visitors and staff alike. By consolidating infrastructure and moving to a centralized, cloud-based architecture, the museum achieved:

- Lower Total Cost of Ownership with fewer APs and reduced maintenance
- Operational Efficiency through automation and cloud management
- Future-readiness with a roadmap considering targeted Wi-Fi 7 adoption for office zones
- Enhanced User Experience, ensuring guests stay connected to exhibits, apps, and services throughout the venue

### ONE Network

MUSE's transformation is powered by the Cambium ONE Network, a unified framework that simplifies IT operations by merging Wi-Fi, switching, security, and SD-WAN under a single cloud-managed platform. With intelligent automation, application visibility, and deep integration capabilities, Cambium's ONE Network helped MUSE:

- Reduce AP footprint while enhancing coverage
- Seamlessly manage multi-site deployments
- Prioritize user experience with policy-based control and proactive optimization



### About Cambium Networks

Cambium Networks enables service providers, enterprises, industrial organizations, and governments to deliver exceptional digital experiences, and device connectivity, with compelling economics. Our ONE Network platform simplifies management of Cambium Networks' wired and wireless broadband and network edge technologies. Our customers can focus more resources on managing their business rather than the network. We make connectivity that just works.