

Meraki Solar: WiFi without Wires

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Overview

The Meraki Solar lets you cover large outdoor areas quickly, easily, and cost effectively. This white paper describes the system, sample applications, and a total cost of ownership (TCO) analysis for an urban park scenario.

Product Overview

The Meraki Solar is the world's first pre-packaged, self-powered WiFi mesh repeater. It represents a quantum leap forward in enabling the rapid construction of large outdoor networks. Combined with Meraki mesh, it's the first system that is truly wireless.

The product has two primary components: the Meraki Solar hardware and Meraki Hosted Services.

Solar Hardware

The Meraki Solar is unique in that it requires no system integration and features a state of the art power system.

Traditional Solar-powered wireless systems require a complex systems integration effort. The customer is forced to cobble together charge controllers, batteries, panels, software, and wireless radios. Meraki has integrated all of these components into a simple, easy-to-use package. This lets you buy an off-the-shelf system that installs in under 30 minutes, from the time you show up on site to the time you are on your way.

In addition, we pair our intelligent power management software with a state a state of the art power sub-system. The Solar includes a large capacity lithium iron phosphate battery, ultra power efficient radio, and a smart charge controller.

Hosted Services

Meraki's hosted services, known as Dashboard, include mesh routing, sophisticated remote administration and configuration, and intelligent power management.

Meraki mesh allows you to have a large number of wireless repeaters, mixed in with a small number of wired gateways. This allows for rapid installation since the majority of access points can be placed wherever is convenient, instead of wherever you can install a network connection.

Meraki's hosted services also provide features like remote management, centralized administration, bandwidth shaping, interference management, and user authorization. Meraki's website provides additional detail on the many services available through Dashboard.

Finally, Meraki Solar is the only solar-powered product that comes out of the box with centralized remote management. Our Dashboard service continuously monitors the power condition of the unit, and adjusts settings depending on the power and weather conditions. For example, Meraki can detect a potential power shortage and cause the unit to take a brief nap during non-peak times. Our sophisticated power management system means you get higher availability at a lower cost.

24x7 Uptime

The Solar is highly reliable, providing 24x7 uptime in most locations worldwide. The only decision you need to make is how large of a Solar panel to buy: Meraki offers a 20 watt and 40 watt version. Your Meraki sales representative or our website can assist you in making the right decision based on your location.

Benefits of the Meraki Solar

There are many reasons why the Meraki Solar can be a good component of your wireless network. Here are some of the top ones.

Cover Hard to Reach Areas

The Solar is ideal for providing coverage to remote or hard to get to places. Sometimes there are just a few access points that are hard to wire, so you'll need just a few Solar units. In other cases, the entire area is without power; fair grounds or parks are typical examples.

Reduce Hassle and Planning

Even if it's possible to reach an area with power, sometimes the time required to plan for and secure the rights to that power can be prohibitively expensive. Take, for example, a business district. Each building rooftop or storefront is owned by a different entity. Securing permission from each business owner can be time consuming and complex. With the Solar, all you need is a 30 minute time window on the roof.

Save Time and Money

In many cases the single most expensive line item in an Outdoor network installation is the time and materials required to cable and install an access point. The Solar drastically reduces this cost, requiring only 30 minutes of a trade-level installer. Since there are no electrical or network cabling runs, there are no electricians involved. This translates into a significant cost savings in many applications.

Solar is Green

The Meraki Solar runs on its own state-of-the-art solar-charged battery, and requires no connection to the local electrical grid. The Solar is incredibly energy efficient and has limited impact on the environment.

Sample Applications

The Solar can be used in a wide variety of applications. Some examples include:

- Parks
- Temporary networks such as festivals, concerts
- Residential communities
- Business districts and water fronts
- Golf courses and resorts
- Disaster relief

TCO Analysis for Urban Park

The Meraki Solar often represents a significant cost savings versus traditional outdoor solutions. The following table compares the total cost of installation in an urban park setting.

	Meraki Solar	Traditional
Hardware		
Access point	\$ 1,000	\$ 750
Materials	\$ 25	\$ 250
Subtotal	\$ 1,025	\$ 1,000
Services		
Labor cost per hour	\$ 40	\$ 150
Scheduling and planning	0.5	4
Installation and cabling	0.5	4
Total hours	1	8
Subtotal	\$ 40	\$ 1,200
Total cost per AP	\$ 1,065	\$ 2,200
Number of APs	100	100
Total cost	\$ 106,500	\$ 220,000

Cost savings come from many sources. First, the labor used to perform a simple Solar installation is typically far less expensive than electricians or network cabling professionals. Second, the number of hours needed is drastically reduced, both in the planning and negotiation phase, as well as the on-site installation phase. Finally, no additional materials are needed with a Meraki installation. The unit is completely self-contained, with all major mounting hardware included.

The cost savings can be substantial. In this example, the use of the Solar saved over \$110,000, and was 48% of the traditional price.

Summary

The Meraki Solar lets you cover large outdoor areas quickly, easily, and cost effectively. It can be part of a larger outdoor network, or just used where it's needed most. And, as with all Meraki products, it can be deployed quickly and is highly reliable.