

# NEXTracker™

A Flex Company

## Creating a Smarter, More Secure Solar Field

SmartNexus by Flex - An IoT platform

The #1 ranked solar tracking device company in the world turned to Flex to assure secure exchange of information from the solar field to the cloud and back.

“Knowledgeable, responsive. Flex gave us confidence they would deliver.”

– Allan Daly, NEXTracker, Vice President of Software

### Overview

NEXTracker designs, manufactures, builds and services the world’s most advanced single-axis solar trackers. The company’s smart tracking devices, which change the orientation of solar panels throughout the day to maximize energy capture, deliver industry-leading performance. A strategic decision to focus resources on core product innovation prompted NEXTracker to partner with Flex to address complex secure data communications needs.

### Challenge

Installing secure connections between NEXTracker’s solar trackers and its cloud data center was a market imperative. But the time and effort required to develop a device and data management solution in-house jeopardized the achievement of primary development initiatives.

### Solution

NEXTracker used SmartNexus to implement the bi-directional pipeline needed to deliver data to and from the trackers securely through the internet. A trusted partnership—SmartNexus—enabled the client to focus on what they do best.

### Results

Deployment of secure bi-directional communications plus over-the-air (OTA) software updates provides significant value to NEXTracker, including cost reductions, unparalleled reliability, improved productivity—and competitive advantage.

### NEXTracker Partnership Benefits

- » **Maximize resources.** The partnership let NEXTracker concentrate on enhancement of its core product.
- » **Address security concerns.** SmartNexus testing, backup and recovery capabilities—as well as encryption for data in motion and data at rest—protect NEXTracker and its customers.
- » **Prove compliance.** SmartNexus meets all industry requirements, including North American Electric Reliability Corporation—Critical Infrastructure Protection (NERC-CIP), from day one.
- » **Save time, effort.** Software updates and maintenance in the solar fields are managed remotely.
- » **Leverage a gold-standard approach.** Secure IoT solutions and best practice methodologies drive efficiency.

## When the Decision is “Buy”

“We decided early on that Flex was the high-quality partner we needed,” said Allan Daly, the vice president of software for Fremont, CA-based NEXTracker. The world’s leading provider of solar tracking devices chose SmartNexus by Flex to design and build the infrastructure needed to securely collect and manage data to and from the solar fields—an important feature of the company’s best-in-class tracking solution. “SmartNexus has the expertise to zero in on secure connectivity requirements so we can devote our team’s resources to making our trackers smarter and more efficient,” said Daly.

SmartNexus brought industry experience across multiple industries to the table, giving them the ability to point out potential problems not yet on NEXTracker’s radar. “We benefited from their ‘seen it before’ perspective,” said Daly. “They pushed us to consider unforeseen issues that were useful in the requirements definition of our own product.” Ultimately, the decision to buy (vs. build) is helping NEXTracker meet market needs quickly, making it possible to grow the four-year-old company faster than otherwise possible, according to Alex Au, NEXTracker chief technology officer.

## Security First

NEXTracker understands the importance of securely connecting customers from remote locations all over the world to its cloud data centers. Cyber security, hacking and viruses impact the safety of data, people and power plants that NEXTracker serves. “That’s why we take security concerns so seriously,” said Daly. “We’ve invested in a partnership with Flex that puts security first. Flex has the size, scale and reputation to give us—and our customers—the confidence we need.”

Beyond security, NEXTracker solar farms must also remain compliant with watchdog organizations. Proving compliance with dozens of standards is time consuming, and it’s a task Flex undertakes on behalf of NEXTracker. “Flex has a standardized process that streamlines documentation of adherence—which is one more way Flex gives us freedom to focus on mission-critical work,” NEXTracker’s Director of Software Development Bruce Wootton said. Helping NEXTracker’s devices communicate securely and stay compliant is what both parties refer to as the chain-of-trust: “We’re in this together. Our partnership is key to making sure our solution isn’t compromised,” Wootton added.

## An Optimized Field

Just as the Flex security expertise was an important driver of the partnership, the IoT solution’s advanced command and control and OTA services played a key role in NEXTracker’s decision to work with Flex.

“Solar fields are in very remote areas,” the NEXTracker engineers noted. “Flex’s ability to install a software update and control NEXTracker’s devices remotely has tremendous value to our company and our customers.

“Otherwise, installing software updates and troubleshooting would require that field engineers be present at each self-powered controller—a labor intensive proposition that costs too much and takes too long”, said Wootton.

NEXTracker’s decision to use SmartNexus to connect to their business intelligence platform helps them optimize management of their solar trackers. SmartNexus APIs gave NEXTracker’s engineers a secure way to send and receive the real-time data that lets them leverage advanced predictive analytics capabilities to make their devices more effective—without having to leave their desks.

## One Partner, Multiple Benefits

Having a single partner focused on secure bi-directional communications between in-field trackers and their cloud—providing real-time adjustments to solar panels—is compelling to the smart solar tracking solutions company. NEXTracker’s Au, Daly and Wootton value working with an accountable team that has the people, infrastructure and resources to get the job done. “It’s clear people at Flex have done a lot of project-driven work. They understand how to modify their IoT platform, SDK framework, APIs and process to accommodate new use cases,” said NEXTracker’s Wootton, noting this ability “makes it easier to understand how we will work with them.”

NEXTracker engineers also commended the Flex team’s reliability, flexibility and openness, and noted their responsiveness in documenting issues that come up—and then driving them to conclusion.

## Never Rest

Flex is committed to long-term relationships. In the case of NEXTracker, Flex was involved in the design phase—customizing the secure, bidirectional communications pipeline—and the implementation of the solution. Flex is also managing the secure data centers that solar-tracking customers connect into, using a transparent process to audit security controls, monitor systems, test backup plans and perform vulnerability and penetration testing. In addition, the NEXTracker team plans to develop new feature sets requiring more security and more remote capabilities—and they are looking forward to a continued relationship with Flex.

“When we look for partners in a big technical endeavor, we are looking for partners who can free us—who can take care of issues that don’t make sense for us to spend time on,” said Daly.

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