SkyFoundry Insider

In This Issue

The Global Reach of SkyFoundry's Worldwide Partner Community

It's All About Choice:

Deploy On-Premise, at the Edge in the Cloud or Both – SkySpark® Has You Covered

SkyFoundry Partners – Bringing Expertise and Choice for Applications of All Types

SkyPosium

Preview of SkyPosium 2019 – Our Worldwide User Community Events – *Register Now!*

The Leading IoT Analytics Platform Also Provides the Greatest Choice for Implementation and Support Services Worldwide

All buildings are different, and all organizations have different needs. For some, a managed service that monitors their facilities and equipment remotely and delivers recommendations for corrective actions is the right fit. Others want their data to stay on-premise, inside their secure networks, and have their in-house facilities teams work directly with the analytics software.

And many see the benefit in having the analytics software that is watching the performance of their critical systems delivered and managed by a different organization than the one that installed those systems.

These are just some of the reasons that SkySpark is brought to you through a worldwide network of over 135 authorized partners. These professionals, which include consulting engineering firms, managed service providers, top-tier control systems integrators, M&V and commissioning professionals and OEM's, provide owners and operators with unequaled choice in planning and implementing a data analytics strategy for their organizations.

In this issue we highlight a few of SkyFoundry's partners from across the globe and the range of offerings they provide to help owners efficiently manage their facilities.

SkySpark® Everywhere™
Flexibility to Deploy from the Edge to the Cloud

SkySpark is unique in the deployment flexibility it offers – both technical and business. You can run SkySpark *"in the cloud"* with major providers including Microsoft® Azure® and Amazon Web Services® among others, or you can install it on-premise keeping all of your data inside your secure firewall.
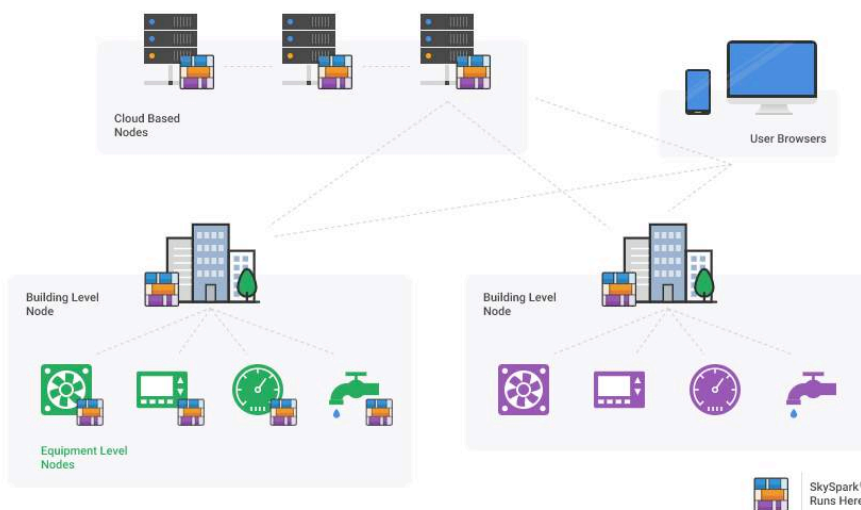
But the flexibility doesn't stop there. SkySpark provides a true edge-to-cloud solution and can be deployed on computing devices from the largest servers to small, low cost IoT devices, industrial computers and IoT gateway products. *And you choose your operating system* – SkySpark runs on Microsoft Windows®, Mac OSX® and Linux®.

SkySpark Everywhere's distributed architecture allows multiple SkySpark nodes to be clustered together using a protocol we call Arcbeam. Clusters enable highly distributed multi-node systems to act as a single, seamless, unified system.

Arcbeam is designed to work well with your IT infrastructure. We use public/private key pairs for secure authentication, and Arcbeam is firewall friendly.

Scale? – Bring it On.
With SkySpark's unique distributed architecture capability you can grow your SkySpark installation to meet virtually any size project.

Choice – Just one reason why SkySpark is deployed to over 1 BILLION sq. ft across over 13,000 facilities on 6 continents worldwide
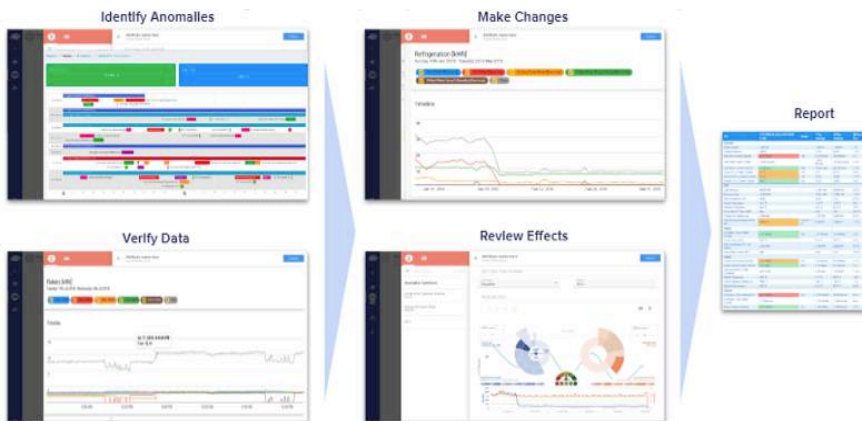
Focus on SkyFoundry Partners -
The Final Element in Flexibility

CROWLEY CARBON
COOLING THE PLANET

Crowley Carbon is one of Europe's fastest growing integrated energy efficiency service & software companies. The company was founded to deliver **sustainable change**. Using deep technical expertise and innovative solutions they identify & **GUARANTEE** energy cost saving opportunities in large industrial & commercial factories.

Average savings across all sites & projects in 2018 was 21% and average payback was 2.9 years.

Crowley Carbon further enhances and sustains savings over the long term with their **Clarity™** energy intelligence and asset management software, based on **SkySpark**.

Derived from deep engineering experience in retrofitting commercial and industrial facilities, Crowley Carbon offers an unrivaled platform for industrial production companies to bring higher level intelligence to their systems to help reduce energy consumption, increase uptime and improve core process performance.

Clarity™ offers an easy to use tool that is tailored & relevant to client's needs with specific quantifiable actions. Beyond reporting on historical data & events, Clarity™ utilizes data to predict the future ensuring minimum downtime and maximum optimisation.

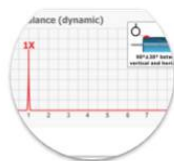### Step 1: Builds a digital twin of your plant to track - Ideal v Reality

Step 2 Onwards. Cognitive Analytics - Real-Time Information

General Alerts
"Something is wrong"

Smart Alerts
"Something is wrong, this is the problem"

Predictive Alerts
"Something is going to to be wrong"

Cognitive Alerts
"Something will be wrong, thi is the optimum response"

COMMERCIAL BUILDING CASE STUDY

The Project: Energy Audit for a LEED certified building with a Platinum rating to identify improvements that would achieve further Carbon and Energy reductions in accordance with the client's values of promoting sustainability, human health & happiness. The client is always looking for simple solutions that they can scale globally.

Action: Initial work done on the BMS was extraction of historical data for diagnosis in the analytical platform to identify problem areas. This was then supplemented by live integration to BMS controllers to allow ongoing monitoring of the impact of changes.

Outcomes:
TOTAL SAVINGS: **€255,000**
PAYBACK: **14 months**
ENERGY REDUCTION: **335Mwh/mth**
COOLING/HEATING REDUCTION: **30%**

Learn more at:
https://www.crowleycarbon.com/

Improving Performance and Comfort in Facilities Across Spain

Sistrol, has become one of the leading BMS solutions companies in Spain. Its services include BMS installation, maintenance services, Smart Retro-Commissioning and Building Analytics, including diagnosis of installations and systems.

Sistrol, serves building owners with a comprehensive analytic service named **WhyB**, based on **SkySpark**. Through their WhyB Services, Sistrol has implemented SkySpark across over more than 20 of the largest companies in Spain, in sectors including banks, hospitals, energy companies, facilities management companies, public buildings, etc.

WhyB monitors the facilities and equipment systems, automatically identifying incidents, which are then prioritized and managed for resolution by a WhyB Analyst. The Analysts work directly with the client explaining, advising and helping to manage incidents for facility managers.

Today the WhyB service monitors well over 40,000 BMS points in facilities of all types helping clients achieve reduction of energy consumption and maintenance costs, while maintaining optimal environmental conditions for occupants.

As an example, Sistrol applied WhyB to one of the main banking complexes in Spain with 41 main buildings and 181 branches. The project included over 23,000 analytic points. In this project, WhyB identified issues including BMS points quality, improper operation of equipment systems, energy optimization, and building comfort. Another major client is a leading Spanish energy company, for which WhyB provides continuous analysis of their two main buildings, helping them optimize energy management and obtain ISO certification.

Sistrol has been a SkyFoundry partner since 2012 and employs certified SkySpark engineers and software developers. Combining SkySpark with the analyst and consulting services of the WhyB program helps clients understand the interactions of their complex systems and make their buildings work optimally.

Learn more about Sistrol and **WhyB** at this link: https://sistrol.com/en/#2

Delivering Analytics-Driven Efficiency to Australia

CONTROL & ELECTRIC PTY LTD
Building Automation | Mechanical Electrical | Switchboards | Service   ACN 135 853 780

Control & Electric Pty Ltd is a wholly Australian owned company based in Canberra, providing a total package of electrical and controls solutions for mechanical systems. Founded in 1980, C& E has been installing SIEMENS Apogee Building Management and Control Systems since 1985 and added energy management and building optimization services in 2009.

Control and Electric uses **SkySpark** for:

- Monthly Portfolio Monitoring & Reporting
- Building Energy Efficiency Improvement
- Fault Detection & Diagnostics

Providing a solution for energy monitoring and fault detection enables C&E to provide clients with a complete package of services for HVAC installations, including everything from design drawings, manufacturing switchboards, electrical installation, programming controls, commissioning and now analytics and building performance services, all under the one roof.

Control and Electric leverages SkySpark to identify faults & efficiency opportunities – ranging from small hardware fixes (replacing sensors etc.) to wholesale control algorithm changes. A highly skilled team of engineers and technicians makes it possible to implement changes quickly, allowing the client to begin realising savings immediately.

SkySpark implementation which analyses 7500+ data points across a campus of buildings shown in blue

Recognized Successes

The National Australian Built Environment Rating System (NABERS) is a performance-based rating system developed to measure a building's energy efficiency against the rest of Australia's building stock. A NABERS rating is often required when spaces are advertised for sale or lease. A higher NABERS rating helps:

- attract tenants as high performing buildings, support high performing business;
- reduce operating costs and vacancy rates;
- increase market value and rental income;
- optimize building management and operations

Control and Electric's team of NABERS accredited assessors used SkySpark to develop a 'Live' NABERS tracking dashboard, enabling clients to monitor their rating in real time. This has led to significant improvements in energy efficiency and awareness for clients as anomalies can be immediately translated to financial impact. In one example, SkySpark algorithms detected peaks and troughs in the chilled water plant's electricity meter, which signified cycling between stages. This issue could have been overlooked, but by quantify the NABERS impact, a metric the owners could relate to, the issue was resolved in the same week. Using SkySpark an error in the staging control algorithm was identified as the cause.

C&E's approach to design, install, commission and then provide ongoing analytics and consultation has enabled clients to truly take advantage of their building's data to drive efficiency. This is particularly true for buildings which are not standard commercial office buildings. Past projects have included holiday parks, science laboratories and museums. Learn more about Control & Electric: http://www.controlandelectric.com.au/services/energy-monitoring-and-analytics/

Choice in Service Provider – Providing Maximum Flexibility

Today SkySpark is deployed across well over 1 BILLION sq. ft (>92M sq. meters) of facilities worldwide consisting of over 13,000 facilities.

Why? Because it delivers financial value to building owners and operators, AND because our worldwide network of authorized partners give owners freedom of choice and **deep expertise** in applications of all types. From the special needs of military and Government facilities to hospitals, research labs and indoor agriculture, to fast food production and oil rigs, there is a SkyFoundry partner with the expertise for your unique application.

SkySpark is not just for commercial office buildings - its an ideal fit for any application in the "built environment" – hospitals, universities, research labs, indoor agriculture, fast food production equipment manufacturing, and even oil rigs – if you have sensor, machine and equipment data SkySpark will work for you to reduce costs, streamline operations and improve overall efficiency.

SkySpark - Proven in Applications of All Types

SkySpark is used successfully in all types of facilities with deployments across well over **1 Billion square feet** (over 92 Million m²) of space on 6 continents. Applications include:

- Commercial office buildings (owner occupied, REITs)
- Utilities (demand response, load management)
- Government and Military facilities
- Data Centers
- Industrial facilities
- Multi-site Retail and Quick Serve Restaurants
- Higher Education
- Indoor Agriculture
- Laboratories (Government, research and universities)
- Entertainment/Hospitality (casinos, shopping centers, hotels)
- Smart Cities
- Facility management service providers
- Oil Rigs
- Energy analysis, commissioning and M&V

SkySpark partners offer different service models ranging from on-premise, customer-owned installation to software hosting, managed services and analytics-augmented consulting

These diverse success stories are made possible by our worldwide network of authorized partners, just a few of which are profiled in this issue of the Insider. Learn more about our authorized partners at: http://www.skyfoundry.com/buy/

Bringing SkySpark® to Singapore and Beyond

Teale was co-Founded by Adrian Bukmanis, an Australian who moved to Singapore after several years in the UK. Starting from scratch, Teale was established in Singapore to provide software tools and engineering services to help companies manage and reduce their energy consumption.

Working across South-East Asia (and as far afield as Africa), Teale has carried out projects in a large variety of commercial and industrial facilities and has been working with SkySpark for several years.

Commissioning of new Chiller plant using Skyspark for M&V

Teale's expertise lies in integrating existing controls system data (BACnet, Modbus, OPC etc). All the large industry controls players are present in Singapore and there is a lot of data to acquire and analyse. Chilled water systems are extremely common in the region and offer a key starting point for the SkySpark analytics process. Air distribution systems also offer significant optimization opportunities, especially with the challenge of keeping the ever-present humidity under control.

Teale's largest SkySpark installation to date is for a leading regional property developer with well-known commercial centers and retail shopping malls across Singapore. Working in partnership with Accenture, Teale provided site connectivity and centralised storage of data in a **Haystack** structured database. Using their combined expertise, analytics rules were developed to for the chilled water and air distribution systems. With the rules in place, the focus is now on turning the insights into defined efficiency projects.

The **Greenmark** rating system is one of the many sustainability programs Singapore has developed and is used locally and regionally. Teale has invested in developing SkySpark rules and View Builder dashboards to support ongoing monitoring and reporting requirements, streamlining the reporting process for clients.

A recently completed project utilized SkySpark to support a performance-based replacement of a chiller plant, carried out in partnership with financing firm SDCL. Teale was responsible for the measurement and verification process (based on IPMVP) using SkySpark as the primary tool for the savings reporting as the independent 3rd party. SkySpark is also used as a fault-detection platform to provide early indicators on any pending deviation in the chiller plant operation.

SkySpark is also used as the foundation for some innovative work bring carried out by Teale in the **MonacoTech** development program In Europe. Teale believes that finding ways to accelerate energy performance contracting is an important part of reducing emissions. Work is being carried out to develop specific rules for this process, utilizing machine learning for modelling and control as well as deep integration with 3rd party applications for ongoing tracking of projects. Learn more about Teale: https://www.teale.asia/

Analytics-Driven, Monitoring-Based Commissioning for Customers Across the Globe

Energenz, a division of NV5, is a leading energy efficiency consultancy in Asia whose services deliver significant financial value to clients at all stages of the building lifecycle. Energenz has developed a comprehensive range of capabilities that can be applied to many types of different facilities to maximize resource efficiency.

Energenz's energy intelligence services give clients an integrated platform to record, understand, and monitor energy usage, and enable sophisticated analysis to continuously advise them on improving energy and operational efficiency.

Using IoT devices, data from building systems and analytics powered by **SkySpark®**, Energenz provides owners and managers with a knowledge and intelligence discovery machine, empowering operators by providing full transparency of facility health, performance and quality of service.

Big Data Bank and Dashboards
- Collect operational data from various systems to enable a central data repository as a single source of truth for analytics
- Create management dashboard to visualize KPIs and OPIs
- Auto benchmarking and reporting.

Data Analytics and Diagnostics for Major Systems
- Continuous discovery of issues on equipment system operation across multiple platforms (BMS, PMS, PoS…etc.)
- Equipment/Component/System diagnostics and performance optimization
- Predictive maintenance and condition-based maintenance through Machine Learning

Quality Monitoring and Advanced Control
- Incorporate advance monitoring IoT devices to collect operation and quality of service data (Thermal Comfort / Occupancy / Air flow / Storage temperature / Queue Management…etc.)
- Cross platform data analytics to provide elevated intelligence on quality of service
- IoT network design and big data analytics development.
- Quality feedback to operations for transparency and awareness

CASE STUDIES

Gaming and Hospitality

Boyd Gaming entrusted Energenz to deploy implement Monitoring-based Commissioning (MBCx) at multiple sites, including the Sam's Town Hotel & Gaming Hall, the Orleans Arena, Orleans Casino, Gold Coast Hotel & Casino, Aliante Casino & Hotel and Sun Coast Hotel & Casino in Las Vegas.

San Manuel Indian Casino Monitoring Based Commissioning and optimization of control sequences for major systems, including central plant and airside equipment. To facilitate implementation of projects identified using analytics, automated reports were sent to facility team and issues identified and rectified were reported the team with quantified energy savings. From June 2016 to 2017, Energenz helped achieve annual reduction of energy of 823,000 kWh, a $ 90,000 USD cost savings. Learn more at: http://energenz.com/

SkyPosium 2019 Preview
Reserve Your Spot Now!

SkyPosium, our user community events, are back for 2019. The EU event will be held in **Rome, Italy** October 15-16, 2019 and the North America event will be held in **Charlotte, North Carolina**, November 5-6. Full details including event registration and links for hotels reservations can be found on the SkyPosium event website at: https://www.skyfoundryevents.com/

SkyFoundry's SkyPosium events are designed for the entire community of SkySpark users—our reseller partners, end users, engineering consultants, SaaS providers and OEMs, with sessions for everyone from end users to advanced programmers — everyone that uses or applies SkySpark.

With the majority of sessions delivered by community members, SkyPosium's unique format provides attendees with the ability to learn best practices and share experiences among actual users and practitioners.

The 1 ½ day event starts with a plenary session for all attendees on Day 1. Day 2 includes two tracks – one focusing on applications with presentations by community members based on their real world projects and the other a full day developer-level training session.

If you are involved with SkySpark as an end user or partner, whether in sales or a technical role, you do not want to miss these important and informative events. REGISTRATION for both events is OPEN at: https://www.skyfoundryevents.com/

SmartGreen's OptiNergy Managed Service Ensures Comfort & Efficiency

SMARTGREEN

LABS USES OPTINERGY™ TO IMPROVE OCCUPANT EXPERIENCE WHILE REDUCING ENERGY CONSUMPTION IN NEW TEL AVIV FACILITIES

LABS provides an extensive range of products services, investment opportunities and introductions that redefine coworking. LABS provides its tenants unrivalled technology, and contemporary smart design in key locations. Helping their tenants grow their businesses.

With key locations in London, LABS now offers an international location situated on the top floors of the tallest skyscraper in Tel Aviv, Israel - the Azrieli Sarona Tower. Housing 3,000 people, it is the first of its kind in Israel in size, design and quality.

"*When it comes to coworking spaces, it's all about the environment and occupants' positive experience. Implementing OptiNergy dramatically improves thermal comfort in our Tel Aviv facilities by optimizing air quality and temperature, which contributes to higher levels of concentration and productivity of the members. In addition to helping LABS members grow and stay at their best, connecting OptiNergy to our air conditioning systems resulted in more than 15% savings in energy. SmartGreen's solution has dramatically improved the service we provide our members by helping increase their productivity, while reducing energy consumption. It's a win-win for all*".
Elad Alon, CEO, LABS Israel

THE CHALLENGE: In today's extremely competitive environment, coworking companies are looking for ways to maximize their appeal to occupants. Temperature, air quality and occupant experience are extremely important. Understanding that higher productivity enables occupants to maximize their investment in the space, LABS focused on providing high quality environmental conditions as part of an optimum user experience. To achieve their goals, they contacted SmartGreen, the developer of OptiNergy™, an innovative cloud-based solution based on SkySpark, to track performance and comfort and detect equipment failures and energy events in real time.

THE APPROACH: OptiNergy's advanced IoT occupancy sensors were installed across the facility, enabling LABS to know which spaces are being used, which conference rooms are occupied and comfort and air quality conditions in real time. Combining temperature, humidity, occupancy, CO2 and lighting level sensors with intelligent algorithms enables optimal management of environmental systems. Occupants report improved alertness, cognition and comfort - helping them be more productive.

RESULTS: Dramatic improvement in the levels of user comfort/experience • Better space utilization with efficient sensors and occupancy reports • Higher productivity • Lower rate of complaints about temperature, humidity or air quality • Appx 15% savings in energy costs

*SmartGreen provides advanced solutions that optimize the energy and operational performance of commercial and industrial facilities. Their flagship product, OptiNergy™ is an innovative cloud-based platform based on **SkySpark**, that combines machine learning, big data analytics and Building Internet of Things (BIoT) technology.*

The platform is easy, fast and cost-efficient to deploy, delivering immediate savings for an accelerated ROI. The SmartGreen platform is deployed across the US, UK, and Asia, with leading brands including HP, McDonalds, LABS and Walmart. To learn more, go to: https://www.smartgreen.co/

Learn More About SkySpark®

Join us for a comprehensive demonstration webcast.

We publish our calendar of upcoming sessions and other events here:

https://skyfoundry.com/calendar

Or contact us at:
info@skyfoundry.com