



SkyFoundry Insider

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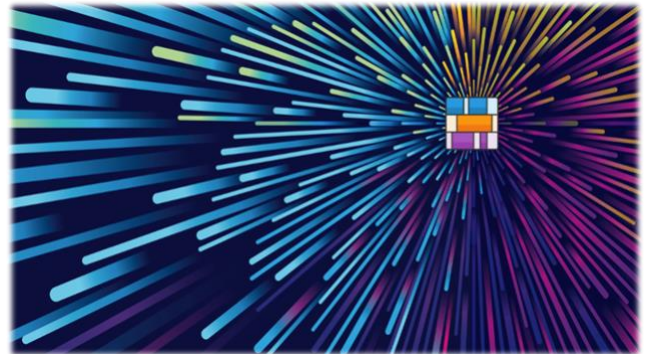
Simplifying Cloud Deployment and Enterprise-scale Applications

SkySpark's Cloud Native Infrastructure (CNI) addresses key requirements to simplify and reduce the cost and complexity of cloud deployment and enterprise-scale implementations. SkySpark CNI...

- Enables systems integrators to easily stand up and run SkySpark as SaaS without specialized DevOps skills
- Reduces Cloud Operations costs by optimizing the use of cloud provider services
- Takes advantage of elastic computing features of the cloud
- Brings the advantages of SkySpark's high performance Folio to the cloud
- Includes new technology to do more than even the best IT DevOps team can do with current SkySpark technology. [Learn more →](#)

SkySpark Cloud Native Infrastructure (CNI)

The “Easy Button” for Cloud Deployment



SkySpark provides a true edge-to-cloud, distributed data-and-compute solution for applications in the built environment. With deployments across **Billions** of sq. ft. and 10's of thousands of buildings, SkySpark has proven itself in many of the largest data analytics and FDD projects on the planet.

SkySpark's key differentiator is that it can be deployed on-premise - inside the client's secure IT environment - OR offered as a cloud hosted solution – **OR both**. The ability to choose where and how to host the software and sensitive data is critical to meet customer needs and is a key reason that SkySpark is so widely deployed.

With the introduction of SkySpark CNI SkyFoundry takes scalability and extensibility of SkySpark to the next level by effectively exploiting cloud technology for **cost efficient**, high-performance, and easy-to-manage cloud-scale deployment.

We developed SkySpark's Cloud Native Infrastructure to simplify and reduce the cost and complexity of cloud deployment and enterprise-scale implementations. SkySpark CNI

- Enables the systems integrators to easily stand up and run SkySpark in the cloud without specialized DevOps skills
- Reduces Cloud Ops Costs by optimizing the use of cloud provider services
- Takes advantage of elastic computing features of the cloud
- Brings the advantages of SkySpark's high performance Folio to the cloud including seamless multi-tenancy, and enterprise-level user management.
- Support enterprise-scale systems with 100Ks of projects, 100Ms of points (sensors)

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SkySpark CNI – Solving the DevOps Challenge

The cloud provides great benefits – scalability, outsourcing IT management, and elimination of capital expenses to name a few - but setting up cloud-based systems for IoT applications requires specialized skills and knowledge often referred to as DevOps – a combination of IT skills and programming skills. Organizations need tools to make that job easier and that’s what SkySpark CNI is about.

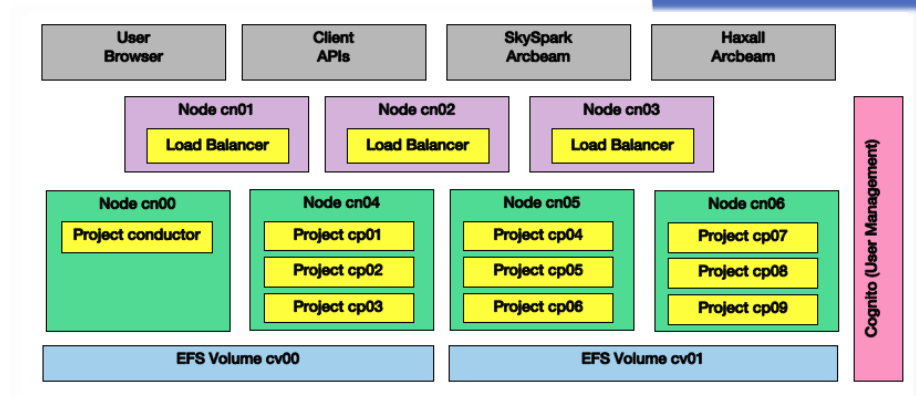
An Example - To correctly provision an AWS cloud requires familiarity with and implementation of a wide range of sophisticated technologies:

- HTTPS load balancing/smart routing
- Certificate management
- TLS termination and public network setup
- Virtual Private Cloud (VPC) networking
- User management across nodes
- Sticky sessions
- Managing storage and backups
- Managing compute loads
- AMI (Amazon Machine Images)
- Software versioning and distribution across cluster
- Cluster load balancing (moving projects)



With SkySpark CNI, SkyFoundry does the hard work for you. The CNI suite of Apps enables you to define your SkySpark architecture using simple point-and-click selections. Once defined, SkySpark selects the optimal mix of AWS features to maximize performance and minimize operating costs.

AWS Cloud Architecture Using SkySpark CNI



There is more to SkySpark CNI than just streamlining the initial setup of SkySpark on AWS. A range of new technologies has been designed to exploit AWS features to do more than even the best IT Ops team can do with previous SkySpark technology. Let's review these key new technologies:

The Conductor Node

The SkySpark CNI architecture includes a special node called the "Conductor" which runs one special Project named "conductor". The Folio database in the "conductor" node stores all of the information to manage the cloud infrastructure state and utilization of resources: volumes, node types, nodes, projects, and portfolios (grouping of projects). This information is compiled into the Cloud Resource Information Base (or Crib), SkySpark CNI then automatically provisions cloud resources.

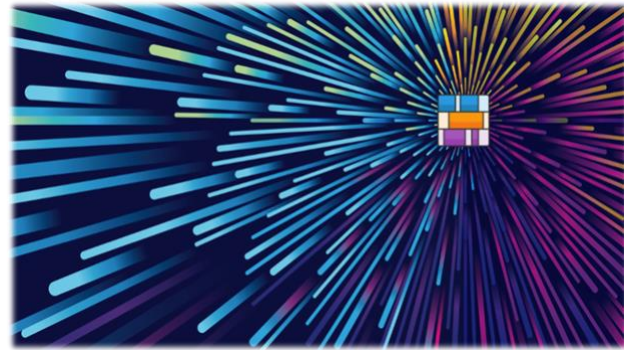
Taking Advantage of AWS "EFS Storage"

Amazon EFS (Elastic File Storage) provides a managed network file system that compute nodes can mount for their storage needs. Each SkySpark compute node shares data using one or more EFS volumes. This design provides a simple file-based deployment model and makes it easy to move projects around between compute nodes.

Cognito User Management

AWS Cognito provides a central user directory (known as a user pool) allowing all CNI nodes to authenticate users. This ensures there is no single point of failure for user authentication and provides a single sign-on experience when navigating between CNI nodes. SkySpark CNI implementations can leverage an existing user pool or use built-in tools to easily create a new user pool. By integrating with Cognito, SkySpark CNI also offers new functionality including, multi-factor authentication and integrating with more than one Identity Provider for federated logins using SAML or OIDC.

SkySpark CNI – New Technology Makes Cloud Deployment Easy



Scalability

- Support 100Ks of projects, 100 of millions of points
- New top-level navigation enables easy grouping of projects and sites into “Portfolios”
- Support for 1000s of portfolios, each with 1000s of projects/sites – whether local projects, SkySpark project replicas, or Haxall clones
- This level of scalability is achieved with new cluster routing mechanisms integrated with the CNI Proxy load balancing technology

Proof Points - At SkyPosium 2022 SkyFoundry demonstrated a running system with 5000 projects and 5,000,000 points providing a smooth, fast, seamless user experience!

Licensing

The heart of CNI – the “Conductor” node is licensed under a subscription model. Other than the Conductor, CNI systems follow the standard SkySpark pricing model which measures capacity based on “points” – a point being anything you want to collect data for. This simple pricing model has been proven to match cost to value. Contact us for more detail.

SkySpark CNI – Key Value Propositions

- Lower barrier to entry by automating AWS provisioning with easy-to-use built-in SkySpark Apps.
- Highly efficient design optimizes use of cloud provider features to minimize costs.
- Painless load balancing - add/remove nodes, move projects efficiently with simple commands
- Provides the next level of scalability for SkySpark – effectively supports billions of points and thousands of sites and projects.

Contact us at info@skyfoundry.com to learn more about how SkySpark CNI can streamline your cloud deployment efforts.

Improving the Efficiency and Accuracy of Commissioning and M&V with Analytics

Flexibility is Essential

All buildings are different – different structural designs, HVAC system designs, usage profiles, and energy loads. These differences have a direct impact on the effort and processes involved in Commissioning and performing Monitoring & Verification (C-M&V).



While overall principles and protocols for those processes are uniform and well understood, implementation details vary greatly for each building. To address this reality, software used to manage and automate C-M&V needs to be flexible, configurable, and programmable by the C-M&V professional.

This flexibility is where SkySpark excels and why it is the leading solution used for data-driven, commissioning and M&V.

From the ability to acquire data directly from building systems via a wide range of protocols - BACnet IP, Modbus TCP, Obix, Haystack, SNMP, Sedona, OPC UA, MQTT, SQL, Nest, Ecobee, CSV import, and a REST API – to the ability to define calculate and track virtually any KPI and analytic rule conceivable, SkySpark gives today's professionals the tools needed to perform their C- M&V processes, efficiently and cost effectively.

Automated Commissioning and Monitoring Based Commissioning (MBCx)

One of the most important advances in commissioning is the concept of **automated commissioning** (also known as connected commissioning) where software (SkySpark) communicates directly with building systems to make changes to operating parameters (like setpoints and schedules) and then tracks system response to validate proper operation.

Continued →

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Automated commissioning saves huge amounts of time and cost compared to manual testing. An article published in the ASHRAE Journal, authored by SkyFoundry partner Altura & Associates highlights the benefits. Find it here:

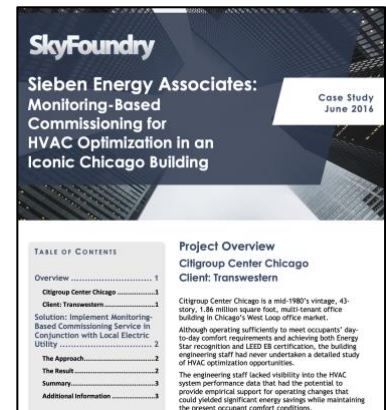
<https://skyfoundry.com/file/164/Case-Study-Altura---Connected-Commissioning-ASHRAE-Journal.pdf>



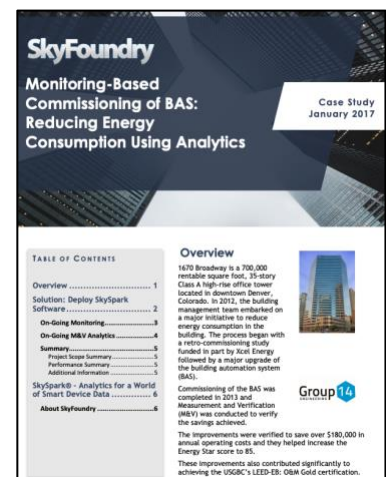
MBCx – Monitoring-based Commissioning

The concept of MBCx is to continuously analyze equipment system operation to detect drift, faults, and performance anomalies. SkySpark is extensively used for MBCx and numerous case studies demonstrate its effectiveness and the compelling financial returns generated. Here are a few examples:

<https://skyfoundry.com/file/183/Case-Study-Sieben-Energy---Monitoring-Based-Commissioning-with-SkySpark.pdf>



<https://skyfoundry.com/file/233/Case-Study-Broadway-Bldg-Denver-Group-14.pdf>



Learn more about using SkySpark to streamline C-M&V with these resources:

<https://skyfoundry.com/verticals/services>

<https://skyfoundry.com/file/411/SkySpark-for-Energy-Analysis-Commissioning-and-MV.pdf>

SkyPosium 2022

SkyPosium 2022 | The Worldwide SkyFoundry Community Event

October 18-19, 2022 | Washington, DC

An In-Person Event for the entire SkyFoundry User
Community

This year's SkyPosium event was a huge success. Attendees and

sponsors were excited to be able to interact **in-person** over the two days of the event. From the plenary session where SkyFoundry introduced SkySpark CNI, and other major technology additions, to the Applications and Business Track presented by community members from around the world, the event provided a unique opportunity to be immersed with the people and companies leading the transition to data-driven efficient buildings. Review the agenda of presentations here:

<https://www.skyfoundryevents.com/skyposium-usa-2022/agenda-2022/>

And Attendees!



Thanks to This Year's Sponsors



We look forward to doing it again next year!
Watch for announcements early in 2023



The Leading IoT Data and Analytics Platform for the Built Environment

SkySpark® Analytics automatically analyzes data from building automation, metering systems and other smart devices to identify issues, faults and opportunities for savings. Learn why SkySpark has been deployed to over 1 Billion square feet of facilities around the world for energy management, optimization, monitoring-based commissioning and fault detection.



Find What Matters™ to Improve Equipment Performance and Reduce Operational Costs.

SkyFoundry
www.skyfoundry.com

Learn More About SkySpark® and How to Apply the Industry-leading Data Analytics Solution to Your Application

Join us for a comprehensive demonstration webcast

Find our calendar of upcoming sessions and other events here: <https://skyfoundry.com/calendar>

Or contact us at: info@skyfoundry.com