Digital Integration for the Data-Driven Platformed Utility

Russell Boyer, Global Energy Field Director, Utilities, Dell Technologies
Daniel Gomes, Business Development Manager and Global Alliances – Energy, Dell Technologies
Thorsten Heller, CEO, Greenbird

SEPTEMBER 28, 2021

EXECUTIVE SUMMARY

Russell Boyer, Daniel Gomes, and Thorsten Heller discuss the current global energy transition and the role of Dell Technologies in supporting this transition. Utilities face a significant challenge in turning data into insights, especially as the energy system becomes more distributed. Greenbird’s Utilihive™ offers the architecture to support this distributed energy system and can be operated on Intel-powered Dell Technologies infrastructure.

KEY TAKEAWAYS

- A global energy transition is underway and Dell Technologies is playing a key role.
- One of the biggest challenges utilities face is turning data into insights.
- As the energy system becomes more distributed, a new kind of data architecture is required.
- Greenbird’s Utilihive™ offers the architecture to support this distributed energy system.
- Utilihive can be operated on Intel-powered Dell Technologies infrastructure.
OVERVIEW
A global energy transformation is underway with issues of climate change at the forefront as well as the development and maturing of renewable energy sources. At the same time, a transition is happening to a more distributed energy system. As a more distributed system takes hold, more data is being generated by both the producers and consumers of energy. The resulting avalanche of information is pushing utility companies to the limit in terms of being able to ingest this data and turn it into usable insights.

This distributed energy system requires new data architecture. Utilihive, an integration platform built by Greenbird using Dell Technologies, is a new IT platform for utilities. Greenbird has reinvented utility data architecture to be able to store, integrate, and manage a distributed energy system and all of the data generated by this system. Offering a wide selection of preconfigured building blocks, Utilihive promises to accelerate the utility industry’s transformation journey.

CONTEXT
Digital utility experts from Dell Technologies and Greenbird discussed the current energy transition and the role that Utilihive can play in helping utilities accelerate their transformation to a distributed architecture.

KEY TAKEAWAYS
A global energy transition is underway and Dell Technologies is playing a key role.
As this global energy transition occurs, Dell Technologies is focused on leveraging technology to achieve human progress. Dell Technologies has set some very specific 2030 moonshot goals, which include reducing emissions by 50%, generating 75% of the company’s energy from renewables, and reducing the overall energy intensity of its portfolio by 80%. In addition, Dell Technologies will collaborate with their utility customers to meet their own transformation goals.

We want to come together to help leverage solutions from Dell Technologies to help utilities achieve their targets.
Russell Boyer, Dell Technologies
Digital Integration for the Data-Driven Platformed Utility

Dell Technologies has developed a portfolio of utility-specific solutions in energy generation, transmission, distribution, and consumption. Areas of focus include grid modernization and management, substation management, digital integration across utility ecosystems, AI-powered analytics and security for forecasting, and edge technologies like computer vision.

One of the biggest challenges utilities face is turning data into insights. Utilities are facing significant data growth from multiple sources and must figure out how to turn that data into insight. According to a Dell Technologies/Forrester survey, 61% of 4,000 companies say they are struggling to turn this overwhelming amount of data into insight across all industries. The types of data include:

- **Core data.** The size of the global datasphere by 2025 is expected to reach 175 zettabytes.¹
- **Cloud data.** 90% of G1000 organizations will have a multi-cloud strategy by 2024.²
- **Edge data.** 75% of enterprise-generated data will be created and processed outside the data center or cloud by 2025.³

The utilities industry is following this overall trend: for example, advanced metering infrastructure (AMI) generates 35,000 data points per year, sensor data is captured every 1 to 4 seconds, and there are more types of equipment gathering data, such as electric vehicles.

As the energy system becomes more distributed, a new kind of data architecture is required. Utilities are moving from a top-down to a bottom-up distributed energy system, in part due to an increase in solar, and other renewable sources, along with electric vehicle charging and more smart sensors. What this means is that every node in the network will be both a consumer and a producer of energy and data. As this distributed system takes hold, a new kind of data architecture and a new kind of IT platform for utilities is needed.

**The future energy system is distributed, and so does your architecture have to be.**

_Thorsten Heller, Greenbird_

This new architecture is needed because a more distributed system requires even more integration. Already, of the time spent on applications, integration, and data analysis, utilities spend 80% of their time on integration and only 20% deriving insights from their data. With a more distributed system, integration will become even more complex and costly. Therefore, a new kind of data architecture that simplifies integration is essential.

Greenbird’s Utilihive™ offers the architecture to support this distributed energy system. As the leading integration Platform-as-a-Service (iPaaS) purpose-built for utilities, Utilihive combines data integration capabilities with storage and harmonization of data in a distributed data lake. In addition, Utilihive offers prebuilt connectivity to the most commonly used utility applications along with preconfigured data flows.

We are focused on helping utilities with their specific business goals around accelerating the value of the data, being able to transform their organizations and get insight out of that data.

_Russell Boyer, Dell Technologies_
Utilihive’s preconfigured tools mean rapid implementation. Utilihive is built completely on cloud-native technologies using a service mesh concept, which can be scaled within milliseconds. In addition, the platform provides many preconfigured building blocks or accelerators that help utilities accelerate their digital transformation—including preconfigured connectivity, utility data models, data integration flows, sensor network monitors, and more. Open, secure managed APIs allow utilities to build additional functionality as well.

Utilihive is providing you with preconfigured data integration for utilities; it’s giving you best-practice data integration applications on which you can build utility data services.

Thorsten Heller, Greenbird

Current users of Utilihive include utilities from across the globe, such as the Taiwan Power Company, which provides power to the entire island of Taiwan. Operating on Dell Technologies infrastructure, Utilihive handles all data integration, providing the foundation for Taiwanese Smart Grid projects and the digital transformation of the Taiwanese energy system.

Typical use cases for Utilihive include:

- Aggregating data from meters, sensors, and other sources
- Optimizing outage management services and predictions
- Load and demand forecasting
- Grid balancing and flexibility based on real-time data
- Non-technical loss and revenue protection
- Smart meter operations
- Energy efficiency services

An additional use case is “digital lifestyle services,” where consumers become “prosumers” and become part of the energy transition. Consumers don’t want to buy kilowatt hours; they prefer to subscribe to a 21-degree Celsius apartment. Utilities must evolve to become a provider of digital lifestyle services, which requires integrated data-driven services.

Utilihive is a scalable network of reactive micro services. It is a set of building blocks with tooling support to operate the platform with end-to-end management and monitoring.

We have built Utilihive as a platform that is purpose-built for utilities.

Thorsten Heller, Greenbird

Utilihive can be operated on Intel-powered Dell Technologies infrastructure.

Utilihive is a cloud-native containerized application that can be deployed in a public or private cloud, or in hybrid environments. It can be deployed on-premise with pre-engineered and validated hardware and software solutions provided by Dell Technologies and Greenbird, powered by Intel.
Digital Integration for the Data-Driven Platformed Utility

Here is a summary of how it works:

1. **Data acquisition.** Connectors acquire data at the edge, pull smart meter data from data aggregators, and send it to the flow server, where the data is managed.

2. **Utilihive on Dell Technologies, powered by Intel.** The Utilihive platform provides a set of modern and secure data services through its API management and provides a high-performance distributed data management architecture.

3. **End users.** Personnel in the field, such as remote and mobile workers, can access the platform to have real-time visibility.

The two major components of the Dell Technologies solution are VxRail and PowerScale.

- **Dell EMC VxRail Hyperconverged Infrastructure.** This is Dell Technologies’ hyperconverged infrastructure appliance with tight VMWare integration and familiar toolsets, optimized for Intel architecture. The core benefits of VxRail HCI architecture are automation, innovation, and acceleration. VxRail simplifies IT operations, lowering operational costs by 72%. It drives innovation with seamless technology integration that enables companies to incorporate more than 114% new apps per year. It accelerates business value, taking on average only 10 months until payback. Compared to companies that purchase individual components, when companies do the integration with VxRail, deployments shrink from two or three months to only one to two weeks.

- **Dell EMC PowerScale.** This is a scalable enterprise storage solution to help customers manage their data. It is powerful yet simple to install, manage, and scale to virtually any size. PowerScale can be deployed at the edge, core, or cloud with multiprotocol support, providing usable insight about a utility’s infrastructure and data to simplify management.

Daniel Gomes, Dell Technologies
Digital Integration for the Data-Driven Platformed Utility

Dell Technologies architecture has been extensively tested to deploy all Utilihive components and to cover up to nine million smart meters. The architecture can be extended to protect against cyberthreats and for cyber resiliency. The Greenbird Utilihive Digital Data Integration Hub, built on Intel-powered Dell Technologies, can drive the electric utility energy transition by enabling and accelerating OT/IT integration with distributed energy resources for today’s Digital Utility.

Daniel Gomes
Business Development Manager and Global Alliances – Energy, Dell Technologies

Daniel Gomes is the business development manager for the energy industry for Dell Technologies’ unstructured data solutions. His main focus is to grow the strategic addressable market for the unstructured data solutions platform, including streaming data platform, PowerScale, and elastic cloud storage, create and maintain a partnership with independent software vendors, enable field sales representatives and presales, and create solutions for the energy vertical.

BIOGRAPHIES

Russell Boyer
Global Energy Field Director, Utilities, Dell Technologies

Russell Boyer is the global energy field director for the utilities industry at Dell Technologies where he leads the development of the grid modernization strategy and edge solutions. He has 22 years’ experience working for and with utilities to help them leverage technology to achieve specific business outcomes. His previous roles include marketing, sales, product development, industry principal, presales, and consulting. He graduated from Texas A & M University with an MBA and a Bachelors in MIS.

Thorsten Heller
CEO, Greenbird

Thorsten Heller is the CEO at Greenbird, responsible for accelerating the energy revolution for utilities with Utilihive. Thorsten has long-term international experience from the energy industry as a CTO, integration developer, product manager, enterprise architect, technology advisor, and technology evangelist. He is a much sought-after speaker on system integration within the utility industry, and a leading social media influencer on open source technology. He holds a Master of Science in Software Engineering and Information Technology from the Cooperative State University Mosbach.

© 2021 Endeavor Business Media. All rights reserved.