ORACLE

SmartCloud Connects to System Operator with Oracle Utilities Live Energy Connect

SmartCloud integrated its cloud solution to an ISO via Azure Service Bus and ICCP connectivity in 5 days with Oracle Utilities Live Energy Connect

AI in the cloud to on-premise OT Integration in 5 days

Many integration providers freely discuss their solutions' features, benefits, and ease of implementation as well as their commitment to customer service; present company included. Here at Oracle Utilities, we recently had an unprecedented opportunity to put these words into action. We were having an average Monday in our Cambridge, Massachusetts offices until we received a call from Japan. A potential new customer, SmartCloud, urgently needed to reengineer its ICCP connectivity solution to an electric power grid system operator that had recently upgraded their SCADA system. They knew Oracle Utilities Live Energy Connect (LEC) natively supports all major protocols for the power industry and that our OT-centric middleware architecture facilitates the integration of grid assets and systems. Functionality was never in question, but what remained to be proven was Oracle Utilities ability to complete SmartCloud's request by engineering and delivering an OT Integration solution in 5 days.

The Challenge: Establish Bi-directional ICCP connectivity between an on-premise/cloud solution and ISO in 5 days

SmartCloud provides an Artificial Intelligence (AI) solution to ensure timely responses to curtailment requests sent to large commercial and industrial electricity users who participate in utilities' fast demand response programs. The AI reasoning monitors curtailment requests in real time and automates appropriate control setting to avoid penalties, either by guiding operators (open-loop control) or communicating directly with control systems (closed-loop control). Its intelligent monitoring escalates non-compliance to ensure contractual and operational standards are met.

In this instance, SmartCloud provides its service to a leading electric power aggregator who in turn provides demand response and management to commercial and industrial electricity customers. These customers participate in the region's Demand Response program and a recent upgrade to their SCADA system required a rapidly re-engineered ICCP connection.

"Oracle's Live Energy Connect platform and professional services delivered a production-ready solution in less than a week under pressure of a fixed deadline, saving SmartCloud and our energy aggregator clients time and money."
Michael Barnett
- MICHAEL BARNETT, PH.D.
EVP, SmartCloud, Inc.

ORACLE

The Solution: OT-Centric Middleware

With the clock ticking, Oracle Utilities and SmartCloud worked quickly to ensure all necessary business and design paperwork was in place. As illustrated, the solution required Oracle Utilities to bidirectionally integrate ICCP data to the ISO and SmartCloud's Azure Service Bus cloud solution. Implementing the solution involved utilizing Oracle Utilities LEC as the system OT integration platform and locating it in Smart Cloud's Boston Data Center.

Azure Service Bus (ASB)

ICCP

Customer 1   Customer 2   Smart Cloud Data Center   ISO
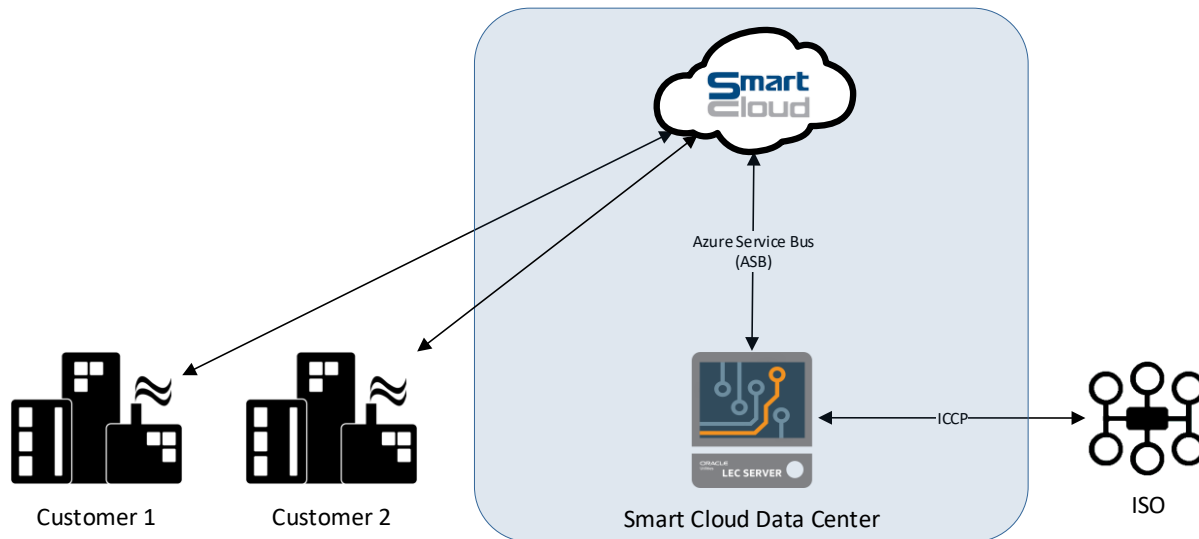
Oracle Utilities LEC as the system OT integration platform in Smart Cloud's Boston Data Center

Oracle Utilities deep ICCP experience and Oracle Utilities LEC architecture made the ICCP connectivity part of the integration equation easy. Oracle Utilities LEC is architected as OT-centric middleware and is purpose-built for the specific regulatory, safety, reliability, and operational requirements of the power industry. ICCP is one of the many standard protocols native to Oracle Utilities LEC.

However, an unexpected roadblock arose as the internal developer of SmartCloud's Azure Service Bus architecture was not available nor was there any formal documentation. Oracle Utilities engineers had access to SmartCloud's legacy solution source code and little else. At this point, the project required Oracle Utilities to write an Azure Service Bus adapter under the extreme time pressure of 5 days.

The Result: Success

Oracle Utilities engineers designed, built, and delivered the solution in time. For SmartCloud, Oracle Utilities LEC publishes and subscribes data in real time to the Azure Service Bus via python scripts through an Azure Service Bus translation library that Oracle Utilities created. The entire project was completed in 5 days. On Friday afternoon at 5:00 PM, SmartCloud verified data was flowing as expected. Though the timeline for the project was unprecedented by industry standards, Oracle Utilities successfully completed SmartCloud's request. That day was another average day in our offices: Oracle Utilities was hard at work for our customers integrating everything OT.