

AGILE MONETIZATION PLATFORMS

CASE STUDY

IoT Monetization at CURRENT, Powered by GE

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Summary: GE, one of the most-respected companies in the world and an icon of the industrial sector, is re-inventing itself as a digital innovator. GE's goals are ambitious, to say the least. Across its business units, GE is creating digital companies that leverage core assets. One of these new businesses is Current, powered by GE. It combines GE's LED, solar, energy storage, and electric vehicle capabilities under one umbrella and adds a digital business platform that can measure and manage power. Current's aim is to deliver "Energy as a Service" – quite possibly the largest "as a Service" play in the world. Creating a digital powerhouse within a 124-year old organization that also happens to be the nation's largest manufacturing company is not exactly an obvious exercise. To be certain – this has never been done before on this scale. Many industries experience digital disruption; however, few industrial giants to-date have embraced the threats and used large scale investment to turn these challenges into opportunities in the same way that GE has. In building its capabilities within Current, GE built and integrated a variety of components, including an external billing and rating engine. This case study details how GE solved the business and technical challenges in its efforts to enable within Current Energy Management System (EMS) a robust monetization capability based on an embedded 3rd party rating and billing engine.

Key Issues

- How will companies monetize the emerging IoT business opportunities?
- How will monetization platforms evolve to support new digital business models?
- What are the winning strategies for monetizing IoT?
- What are the hidden benefits and unforeseen risks of AMP?

As part of the MGI Research Monetization Summit at the New York Academy of Sciences, we interviewed Patrick (PJ) Nelson, a product manager and monetization architect within Current, to discuss the opportunities and challenges of selecting a partner for the rating and billing engine inside of Current's offering. This case study note is based, in part, on that interview.

Company Background: Current, powered by GE

Using GE Digital's Predix platform as the foundation, the Current team is building cloud-native solutions to help customers analyze, implement, and optimize energy systems. In less than twelve months, Current has ramped up to an estimated \$1 billion in revenue, and is working with customers across a wide spectrum of industries, from big box retailers to manufacturers to municipalities.

There are four major components to the Current solution – Control, Insight, Optimize, and Assure.

- *Control* – enables direct control of powered assets – lights, refrigeration, HVAC, et al. This includes among others a capability for highly granular controls including individual device and fixture settings.
- *Insight* – the ability to measure the power usage for any device and provide detailed insights and analytics.
- *Optimize* – the capability to intelligently combine the information provided by Control and Insight, and recommend optimal decisions for power settings down to a device and light fixture level.
- *Assure* – the ability to take usage and interval events and provide near real-time rating of usage events/data. Assure collects all of the utility data – the bills, the interval data – and automates the analysis and payment of bills. Assure provides analysis and better insights to inform contract negotiations with energy suppliers and optimize power spend.

Project Background: Multiple, Complex and Evolving Constraints

Faced with the task of delivering a completely new energy management system (EMS) as part of the overall Current offerings, the GE team faced multiple complex constraints. One of the key challenges was a requirement for the Current

platform to support highly granular rating and billing of power usage while also providing insights into the economics of power consumption.

Build vs. Buy or Rent: Accelerate Time to Market

The question of build vs buy/rent was both an economic and a strategic issue for Current. GE has significant internal engineering resources and GE Digital has assembled more than 1,400 software developers, including several top notch monetization experts, so it had the luxury of being able to build just about anything. Yet, early in the project, Current made a conscious decision to leverage domain expertise wherever it could be found – internally or externally, across a spectrum of functional capabilities and emphasize time-to-market as a primary decision driver. Thus, Current elected to buy or rent capabilities in several functional areas rather than to allow the “not invented here” mentality to slow its aggressive timelines.

When it came to monetization, the team at GE was highly experienced and completely capable of building its own monetization system in-house, but they recognized that internal development would take time away from other project priorities and likely wouldn’t deliver the same sophisticated capabilities already available in the market, so the decision to embed a third-party rating and billing engine into the Current solution prevailed. This direction supported GE’s objective to speed up deployment, but it also forced the Current team to gather, assemble and prioritize functional requirements within a business that is moving at warp-speed.

Requirements Gathering: Riding a Tiger

Current, like many other digital initiatives, faced the challenge of gathering requirements for a monetization solution before the end-state was fully characterized. Defining the precise requirements for a rating engine was a real issue, as the overall EMS solution was very much a work-in-progress. To address this uncertainty, Current began by adopting an agile development and business methodology that embraced the reality that the end-state was not, and may not ever be fully defined. The Current team knew that whatever code would be developed would need to continuously evolve over time as the business requirements would inevitably change. Rather than attempting to write the definitive requirements document, the team planned for agility and assumed that requirements would be constantly changing, thus it would need a solution that could be re-configured without a lot of time or expense. For its own internal development, the GE coding effort centered on quality and scalability – an approach that was also extended to any partners, suppliers and third-party resources that were brought into the mix. An architecture based around micro-services was adopted by the Current team and any 3rd party solutions evaluated had to work well in that environment. Along with agility, code re-use was also highlighted as a top priority.

In a condensed time period, the Current team evaluated a number of rating and billing solutions and selected a supplier. Its success in the overall effort hinged on its ability to balance immediate needs with requirement for future agility as well as a few key foundational principles highlighted below:

Cloud vs. On-Premise Solution: Cloud First

Taking a cloud-first approach was a foundational decision. Although GE itself is a large, traditional industrial company, the Current team, and their counterparts within GE Digital, has adopted a cloud-first strategy. Any solution – whether developed internally or via a partner – needed to be cloud-native. The fact that GE’s Predix platform is cloud-based and many of GE’s recent investments/acquisitions have been based on cloud solutions, underscores GE’s belief in the future of cloud computing in general, and cloud software in particular.

Scalability

For many global enterprises attempting to launch a start-up, the issue of scale is a perilous one. There is a natural tendency to over-engineer things, and encumber a young project with too many people and requirements similar to those of the giant parent company. Current took a multi-dimensional approach to scalability. Organizationally, it started very small, and then scaled the team moderately. It started with a core group of five individuals, and has grown over a relatively short period of time. Today, the EMS team is sizeable, but not massive, even for a well-funded start-up with fast-growing revenues. From a product perspective, Current aimed at offering a highly scalable solution that provides customers with the ability to buy independent modules, or an entire suite if so desired. The goal was always to deliver a complete, componentized solution so customers can start as small, or as large, as they need. Having this scalability placed further demands on the rating engine of the solution – it would need to easily scale in terms of transactional volumes, rating complexities, and from a cost of ownership point of view.

A Multi-Layered Approach to Security

GE takes security very seriously. The company operates in regulated and de-regulated markets, with lots of audit and governance issues – not to mention that a single intrusion or hack could have a material impact on the iconic brand. Current relied on a multi-level approach to security, knowing that sceptics within and outside the business would abound. First, the team was able to rely on the deep security domain expertise inside of GE and subjected its partners to an exhaustive security review process. Next, by using GE Digital’s Predix platform, additional layers of security were built into the end solution. Knowing that Predix itself would be scrutinized and would be the beneficiary of having thousands of customers pushing its limits bolstered the protection afforded to Current (and its solution on top of Predix). Continuous auditing and improvements to the overall security capability of the Current offering are designed to do everything possible to confront the security challenge.

Rating and Billing Functionality: Dimensions of Complexity

At the core of Current’s new EMS is accurate, high performance rating and billing functionality. Being able to scale to one billion-plus transactions per month was a key requirement – with more transaction volume demand likely to come in the future.

Industries Served By Current

- Municipal
- Retail
- Commercial Office
- Hospitality
- Banking
- Manufacturing
- Universities
- Transportation
- Healthcare

Digital Transformation

- Lessons Learned

- Treat the new initiative as a start-up – create an independent legal structure and fund it as a start-up.
- Bring in outside talent
- Add strong, well-respected internal talent
- Use agile methodology
- Build re-usable micro-services
- Start with a very small team and then scale
- Don’t overfund the project – force it to compete for new business

Included in this is the ability to handle a wide range of transactions – from the relatively simple to highly complex tariffs and revenue models.

In terms of detailed functionality, Current was looking for a high degree of flexibility and granularity. For example, an essential requirement was the ability to change rate plans in the middle of a cycle. The system needed to support a flexible data architecture where a single customer could have multiple rate plans, with a wide variety of rating inputs and data feeds across different locations. The system also needed to support rate/charge complexity and a wide range of time series.

The ability to provide a “what-if” analysis was also a key requirement. A key element of Current’s overall offering is the ability to help customers evaluate business trade-offs – e.g., what are the cost/performance implications of running select assets at a given time vs using a different set of assets at the same or a different point in time? Having a rating and billing engine that could provide these insights before the customer actually operates the assets was an important selection criteria. Perhaps most vitally, Current evaluated the flexibility of rating and billing engines with the same multi-dimensional view that it applied to scalability.

Supplier Selection: Agility, Competence, Flexibility

Finding a highly flexible solution was a given. Equally important was finding an agile partner - a product and business team that could approach Current’s present and future needs with creativity and innovation. From the outset, Current recognized that it needed a supplier with deep rating and billing expertise and a partner that could think creatively about solving the rapidly evolving future needs. Implicitly, the rating and billing partner vendor needed to bring to the project a flexible architectural approach. To find this partner, Current evaluated a wide range of billing and rating solutions, and used in-depth scripted scenarios to eventually select the Austin, Texas-based goTransverse.

Bottom Line: Current, powered by GE, has an audacious goal – to deliver “energy as a service” and enable a diverse set of customers from retail to healthcare and government to better understand and proactively manage their energy consumption. At the root of its energy management system is an agile rating and billing engine. While its immediate requirements were sophisticated and complex, the Current team also emphasized finding a solution that could meet its future demands. By embracing some guiding principles and avoiding the temptation to over-engineer its business, Current has tried to stay agile even as its revenues scale past the \$1 billion mark.

About MGI Research

MGI Research is an independent industry research and advisory firm focused on disruptive trends in the technology industry.

The firm was founded in 2008 by a group of senior analysts and executives from firms such as Gartner, Soundview, MasterCard, and Morgan Stanley.

MGI is the only firm with a dedicated practice around agile monetization, including billing, CPQ, financials, and revenue recognition. The firm pioneered the concepts of agile monetization.

Through its research, ratings, forecasts, advisory engagements, industry studies and conferences, MGI Research helps clients identify opportunities for reducing IT costs and minimize technology risks.

MGI Research emphasizes the application of highly quantitative and structured methods in creating decision support frameworks. MGI’s proprietary industry metrics, benchmarks, and indices include the MGI 10KScore, MGI Cloud30 Index, and the MGI 360 Ratings.