



SAP
Innovation
Awards 2019



SAP Innovation Awards 2019 Entry Pitch Deck

Smart Logistics for Inventory Tracking

HCL

THE BEST RUN





<https://www.youtube.com/watch?v=CjYF7-9KPyw&feature=youtu.be>

Smart Logistics for Inventory Tracking

HCL



“Quote”

Experience data driven transformation for Enterprises with HCL's Smart Logistics for Inventory Tracking

Challenge

Organizations producing consumable goods like paint today need solutions that can trace the location, ownership and the condition of their product from the point it leaves their warehouse till the time it is consumed. Such solution help immensely in driving customer satisfaction, accurate inventory management and lower operations cost

Solution

The Solution involves installing IOT devices on Paint Containers thus turning it into Intelligent Assets. The IOT devices transmit the location, condition and quantity of the product in real-time. Further the IOT devices feed key events like closing, opening of the container into Blockchain thus generating a log describing the complete life cycle of the container. The container tracking process is initiated by a business transaction in SAP ERP. Further invoices are generated based on the product consumed as reported by the IOT device

Outcome

The POC helped the business in accurate inventory management and forecasting by providing answer to following key questions – Where is the product? Has it reached the distributor or the customer location? How much of it has been consumed by the end customer?

Inventory Management –
Potential savings of USD 1M

Revenue Recognition – Ability
to offer consumption based
billing

IT Simplification – Extend
standard SAP ERP
capabilities using the cloud
based IOT and Blockchain
services



Partner Information

HCL

Service Integrator

“ ”

Transform Experience. Transform Business.

HCL



Business Challenge & Objectives

Inventory Management

- Limited visibility of product consumption impacts inventory stocking and forecasting process

Revenue Recognition

- Inability to track product delivery and consumption. Dependent on distributors or end customers to provide product status.
- Delay in Revenue Recognition and processing Accounts Receivable

Shipping

- Inability to track the product integrity across multiple custodians during the delivery process

Operations Cost

- Exchanging data and information between multiple stakeholders and their information systems makes the reconciliation process highly tedious, thus increasing operations cost.

The POC objectives were :

- Provide an art-of-the-possible solution that gives real-time visibility to product's location, condition and consumption once its shipped from the manufacturer's warehouse
- Provide an accurate event/audit log for each container carrying the product recorded in an immutable ledger
- Prove the technology by installing industry grade IOT devices on containers carrying chemical products integrated with business process being executed in SAP ERP.



Project / Use Case Details

A company producing paints sells its product to Light Vehicle OEMs(customers) through a network of distributors. The paint is shipped in large tote containers to distributor locations. When the Light Vehicle OEMs place the order, the paint tote containers are shipped to them by the distributor. The process needs to ensure that distributors have enough inventory at all times to fulfil customer orders quickly. Further, the paint manufacturer does not want to store large stocks of inventory on their site.

The paint manufacturer would like to get informed upfront as soon as the product is received and the quantity consumed by the OEMs. This will trigger the invoice generation and expedite the revenue recognition process. Further the paint manufacturer will need visibility into the transportation and logistics process to ensure that their product is transported, stored and delivered to OEMs in the best condition possible.

The Solution involves installing IOT device on each Paint Container thus turning it into an Intelligent Asset. The IOT device has light, temperature and pressure sensors along with GPS to track the condition and location of the paint container. Further the IOT device will be connected to the proximity sensor that detects the Opening & Closing of the Faucet/Valve of the paint container. The IOT devices will transmit the Location and Sensor values through the SAP IOT Gateway Edge 4.0 and SAP Leonardo IOT Services 4.0 to SAP IOT Application Enablement Framework.

In addition, the solution also utilizes SAP Hyperledger Fabric Blockchain service to store the current custodian and condition of the Paint container (Asset) when critical events occur during its Logistics and Shipping process. With Blockchain, the solution offers “Trust” to different stakeholders in the process chain as it is a distributed and immutable database built on a network of participants.

Finally, the solution offers an intuitive dashboard deployed on SAP Cloud platform to present the status, location and current custodian of the Paint containers utilizing APIs/oData services to consume the data from SAP AEF, Hyperledger Fabric and the underlying ERP environment.



Benefits and Outcomes

Business / Social

Inventory Management

- Potential saving of USD 1M by providing visibility to product consumption for a more accurate inventory management and forecasting process

Revenue Recognition

- Ability to offer consumption based billing

Shipping

- Provide real-time visibility to the location and condition of the containers across multiple custodians during the delivery process

IT

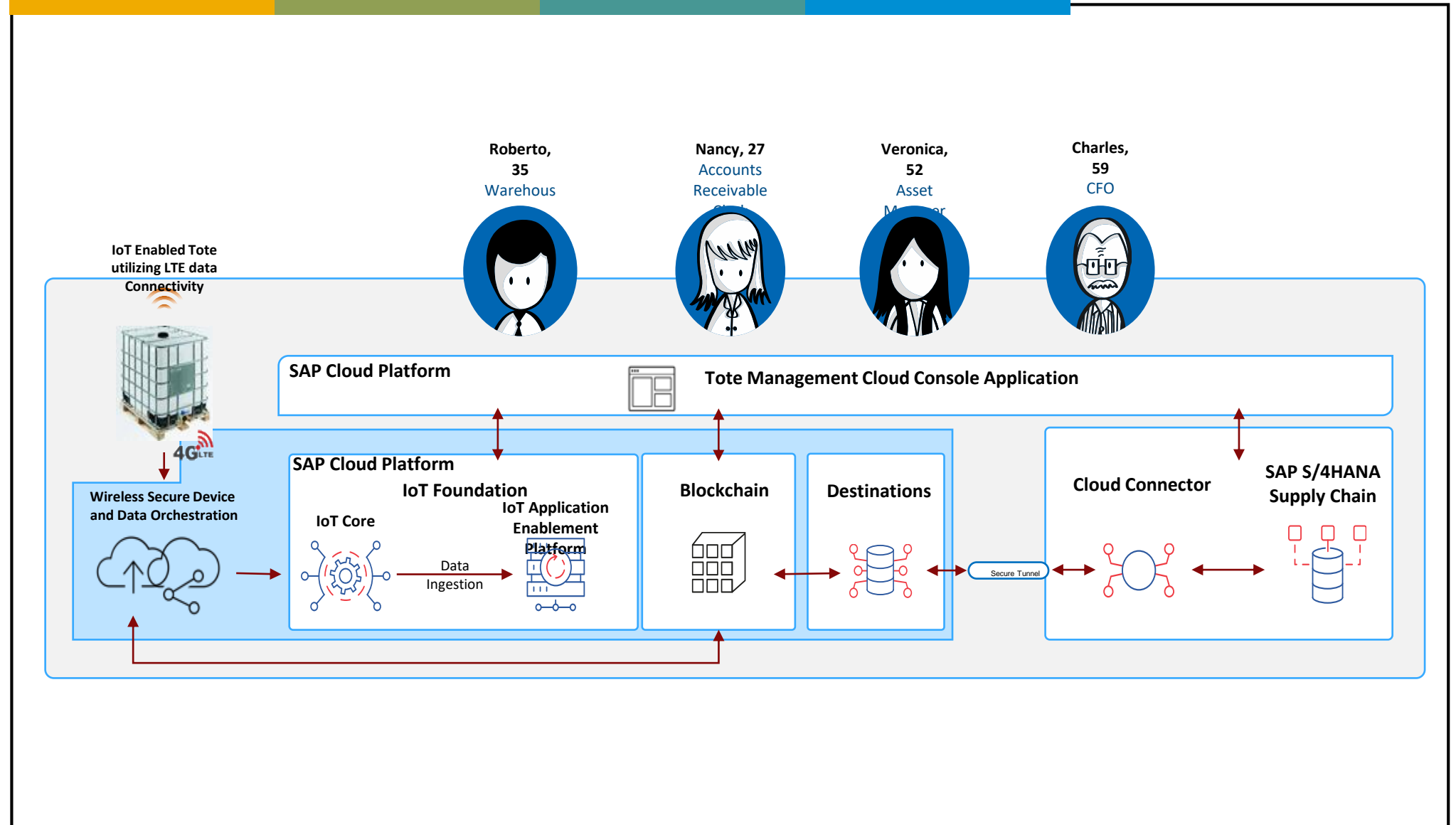
Simplification

- Ability to offer a side by side extension to the standard SAP ERP processes utilizing the cloud based IOT and Blockchain services without customizing the digital core

Human Empowerment



Architecture





Deployment

Date of Deployment or POC: 20th August 2018

Number of live users: 5

SAP Technologies Used:

Product	POC/Production
SAP Cloud Platform	POC
SAP Hyperledger Fabric Service	POC
SAP IOT Services and AEF	POC
SAP S/4HANA	POC

Server Processor:

Linux Distribution:



Emerging Technologies and Use Cases

The following Emerging Technologies and use-cases are part of the project and describe the contribution

	Technology or Use Case	Yes/No	Contribution to Project
1.	Machine Learning / Artificial Intelligence		
2.	IoT	Yes	IoT Devices installed on product containers
3.	3D printing		
4.	Blockchain	Yes	An immutable ledger storing the event log for each container
5.	API Economy / Integrate the Intelligent Enterprise		
6.	Cloud Native / Event Based Architectures		
7.	Extending the digital core with SAP CP / ABAP in SAP CP	Yes	The solution is deployed on SAP Cloud Platform and extends Order to Cash process running in SAP S/4HANA
8.	SAP Leonardo Application (extending SAP application, using Industry Innovation Kits or result of Design Thinking workshop)		