

Industry	Technology
Use Case Title	Address Validation in customer support services
About the Customer	Dell Inc. is an American based technology company. It develops, sells, repairs, and supports computers and related products and services. Dell is owned by its parent company, Dell Technologies.
Business Problem	<p>Availability of accurate location and mailable address is critical to resolve all dispatch-based customer support.</p> <p>Dispatching within certain LATAM countries (e.g., Mexico) often requires extra research, additional tools, and efforts to accurately dispatch parts or assets to the customer’s location.</p> <p>Inaccurate address often leads to (a) logistic failure and/or repeat dispatch (b) prolong customer handle time in contact centre for manual address validation and (c) unsatisfactory customer experience.</p>
Solution	<p>Deployment</p> <ul style="list-style-type: none"> ▪ Private Cloud <p>Approach</p> <ul style="list-style-type: none"> ▪ Dell has their own repository of historic data called Terradata that contains customer information including Customer Number, Asset ID, the corresponding address etc. This data is in unstructured format. ▪ Using Govt. address database that is available publicly, these addresses in the Terradata are enriched and brought into a standardized format. ▪ The addresses are validated using Google APIs. Google APIs are used to best approximate the terradata addresses, and then the validated and standardized addresses are stored in Elastic Search. ▪ Once this is done, tables that store customer numbers and their corresponding asset IDs are mapped to the table that contains the addresses. Because of this, address can be looked up via a customer’s customer numbers as well as their asset ID. ▪ A user can also input live addresses into the system. The address is converted into embeddings. If the embedding exists in Elastic Search, the address is returned from the ES itself to the user. If not, Google APIs are hit to get the best approximated address, which is then stored in the Elastic Search. ▪ A 3-tier architecture is used where the database and SQL server are stored on one, the backend Python logic is placed in one, and the front-end User interface is place in one server. <p>Implementation</p> <ul style="list-style-type: none"> ▪ The solution is implemented across three servers. ▪ One server hosts the UI, one the database and Elastic Search, and one the backend logic.

	<ul style="list-style-type: none"> ▪ This ensures 3-tier protection. The end user can only access the UI end-point.
Outcome	<ul style="list-style-type: none"> ▪ Reduction in logistic failures. ▪ Reduction in repeat dispatches. ▪ Lower customer handle times. ▪ Reducing the need to leverage multiple country-specific tools. ▪ Increased customer satisfaction score.
Value Adds	<ul style="list-style-type: none"> ▪ Automate human efforts in standardizing and correcting the poor address. ▪ Validate shipping addresses, saving the customer time on the call. ▪ Improve existing dispatch tool by leveraging mailability information.