



Business Evaluation

Family-owned business	Values	Immediate Goals
<p>500 dealers, service centers in 100 countries.</p> <p>20% yearly growth</p>	<p>Excellent customer service Minimize vehicle downtime</p>	<ul style="list-style-type: none"> ● Provide best-in-class online fleet management services to our customers ● Improve operations of our dealerships and enable access to data ● Predict and detect vehicle malfunction

Vehicles

2 million vehicles

- Telemetry data collected from sensors in the vehicle
 - Small subset is transmitted in real time for fleet management
 - Remaining sensor data is uploaded daily when vehicles return to home base
- Each vehicle generates 200 to 500 MB of data per day
- 20% annual growth in number of vehicles



Key business assumptions

Predict/detect vehicle malfunction and rapidly ship parts for just-in-time repair	Create a platform for developers to create services for dealers and partners - without compromising security	Decrease cloud operational costs; Increase speed and reliability of development
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Technical Evaluation

Existing Environment	Technical Watch points	Proposed Solution
<ul style="list-style-type: none">• Multiple systems run in Google Cloud; some legacy systems still• Web frontend for dealers and customers is in Google Cloud and allows access to stock management and	Applications <ul style="list-style-type: none">• Container-based workloads• Highly scalable• Cloud-native solutions for keys and secrets management	<ul style="list-style-type: none">• Google Kubernetes Engine for managed containers• Secret Manager• Identity-Aware Proxy

analytics	<ul style="list-style-type: none"> • Identity-based access 	
Vehicles <ul style="list-style-type: none"> • 2 million vehicles x 200 to 500 MB/day 	Migration and Partner Access <ul style="list-style-type: none"> • Create abstraction layer for HTTP API 	Device management <ul style="list-style-type: none"> • IOT Core Messaging • Pub/Sub
Manufacturing <ul style="list-style-type: none"> • Sensor data is captured from two plants and sent to private data centers <ul style="list-style-type: none"> ◦ legacy inventory and logistics systems ◦ Private data centers have network interconnects to Google Cloud 	Development <ul style="list-style-type: none"> • Modernize CI/CD pipelines • Create self-service portal for project and resource management • Manage API endpoints 	<ul style="list-style-type: none"> • Cloud Build CI/CD • VM running the Cloud Bolt software • Cloud Endpoints