



## CASE STUDY

# Vidyut Solutions

## A Map-First Geospatial Asset & Work Management Platform Built on AWS and Shri Sai Tech

### Executive summary

Vidyut Solutions is a cloud-native, map-first geospatial asset and work management platform, built by Shri Sai Tech (SST) on Amazon Web Services (AWS). It helps asset-intensive organizations — across utilities, transportation, telecommunications, municipalities and facilities — manage the physical assets they own and the field work performed against them, all from a single interactive map.

Organizations that maintain large, distributed asset portfolios face a common set of problems: asset data trapped in spreadsheets and legacy systems, field work coordinated by phone and paper, and completed work that is slow to capture and hard to analyse — leading to lost information, slow response and limited operational visibility.

Vidyut Solutions closes those gaps. Leveraging PostgreSQL/PostGIS, Amazon Location Service, Amazon Cognito, Amazon S3 and a configurable role-based access model, the platform unifies asset inventory, work-order dispatch, mobile field reporting with photos and GPS, and analytics — connecting the back office and the field in one closed loop, and adapting to any domain without custom code.

### The challenges

#### ➤ Challenge 1 – Siloed, Spreadsheet-Bound Asset Data

Asset inventories live in disconnected spreadsheets and legacy systems with no single source of truth and no spatial view.

#### ➤ Challenge 2 – Disconnected Field Work

Work orders and crews are coordinated by phone, email and paper — causing delays, duplicated effort and lost updates.

#### ➤ Challenge 3 – No Map-First Operations View

Dispatchers have no interactive map showing assets, crews and active work together, making it hard to prioritise and assign work by location.

#### ➤ Challenge 4 – Manual, Paper-Based Reporting

Crews record work on paper; activity details, materials, labour and photos are re-keyed later or lost entirely, delaying review and closeout.

#### ➤ Challenge 5 – Rigid Tooling and Access Control

Existing tools cannot adapt to different asset types, workflows and terminology, and lack a flexible role-and-permission model.



### About Vidyut Solutions

Vidyut Solutions is a next-generation geospatial asset and work management platform designed to help organizations manage distributed physical assets and field operations efficiently. It brings assets, work orders, field crews, and location intelligence together on a single, live geospatial view, enabling better visibility, improved field productivity, and faster decision-making.

Its flexible, industry-agnostic architecture allows organizations to customize asset models, workflows, terminology, and business processes according to their specific needs. Developed by Shri Sai Tech and hosted on AWS, the platform is built for scalability, future integrations, and expansion across industries and markets.

### Roopa Thelakkat Founder and President

Roopa Thelakkat is the Founder and President of Vidyut Solutions, a technology leader based in New York with expertise in enterprise software, cybersecurity, AI, and cloud technologies. She drives the company's product vision and technology strategy, focusing on building innovative, scalable solutions for real-world operational challenges.



## Simplify Digital Transformation with AWS

Amazon Web Services (AWS) provides Vidyut Solutions with a secure, scalable and cost-effective cloud foundation. By building on managed AWS services, the platform avoids the complexity of standing up and maintaining large-scale geospatial and application infrastructure, while giving every client access to enterprise-grade mapping, identity, storage and data capabilities that scale from a single site to an entire network.

## Why Shri Sai Tech?

Vidyut Solutions is designed and built by Shri Sai Tech (SST), whose engineering expertise underpins the platform and its ability to move quickly from concept to a working, demonstrable product.

### ► What Shri Sai Tech brings to the platform:

- Geospatial (GIS / PostGIS) data modelling and interactive mapping expertise
- AWS cloud-native architecture — Amazon Location Service, Cognito, S3 and managed data services
- Full-stack SaaS delivery across web console and mobile field application
- Asset and work-management domain modelling — assets, work orders, crews, activity reports
- Configurable, multi-tenant platform design with role-based access control
- Agile delivery methodology and rapid, iterative prototyping to production

## The Solution

### ► Interactive Operations Map

A map-first console where assets, areas, crews and work orders are visible together. Work orders are created directly on the map — drop a pin and the right crew is assigned the moment the order is raised.

### ► Configurable Asset and Work Model

Asset types with custom attributes, and work types with crew-eligibility rules, are configured — not coded — so the platform adapts to any catalogue, workflow or terminology without software changes.

### ► Mobile Field App

An installable app lets crews accept and navigate to work, discover nearby assets by GPS, and capture activity reports with photos, materials, equipment and labour from the field, on any phone.

### ► Activity Reporting and Supervisor Review

A single work order can carry many activity reports — one per task performed. Supervisors review each report and approve it or send it back for rework.

### ► Role-Based Access — Groups and Permissions

Groups carry permissions, users belong to groups, and everything is scoped per project — controlling who can configure, dispatch, execute and approve, and which app each user sees.

### ► Admin Configuration Console

A configuration-only console lets teams manage asset types, work types, users and groups, crews, areas and data import — without technical expertise, cleanly separated from day-to-day operations.



➤ **Analytics and Operational Visibility**

Live dashboards give supervisors and managers visibility into work status, discipline, area, crew activity and asset condition — turning day-to-day field activity into operational insight.

➤ **Multi-Tenant, Project-Scoped Architecture**

One secure platform serves many projects, regions or business units, with per-project data isolation — so the same deployment can grow across an entire organization.

# Technology and AWS Services Used

➤ **Foundation Models**

|                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                              |
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| <b>Mapping and Geospatial</b> <ul style="list-style-type: none"><li>Amazon Location Service — managed maps and location APIs</li><li>MapLibre GL JS — interactive vector map rendering</li><li>PostGIS — spatial storage and queries (points, lines, polygons)</li></ul> | <b>Identity and Security</b> <ul style="list-style-type: none"><li>Amazon Cognito — user authentication and identity</li><li>AWS IAM — least-privilege access to cloud resources</li><li>Encryption of data in transit and at rest</li></ul> |
| <b>Data and Storage</b> <ul style="list-style-type: none"><li>PostgreSQL / PostGIS on Amazon RDS — core relational and geospatial data</li><li>Amazon S3 — secure storage for field photos and media</li></ul>                                                           | <b>Application and Delivery</b> <ul style="list-style-type: none"><li>FastAPI — REST API backend</li><li>React Progressive Web App — web console and mobile field app</li><li>Docker containers, Amazon CloudWatch monitoring</li></ul>      |

# Results

➤ **Unified Asset Registry**

- A single, map-first source of truth for assets on a PostgreSQL/PostGIS geospatial data model.
- Configurable asset types with custom attributes — no code changes to add or reshape them.

➤ **Connected Work Management**

- Work orders created directly on the map, with the crew assigned at creation.
- Office and field connected in one closed loop — no re-keying, no lost paperwork.

➤ **Field Mobility**

- An installable mobile field app with GPS-based nearby-asset discovery.
- Task-level activity reports capturing photos, materials, equipment and labour.

➤ **Governance and Configurability**

- Role-based access via groups and permissions, scoped per project.
- A configuration-only admin console that adapts the platform to any asset type and workflow.



## Benefits

- A single, map-based source of truth for every asset and its condition
- The back office and field crews connected in one real-time loop
- Paper-free field reporting with photos, GPS, materials and labour captured at the point of work
- Faster dispatch — the right crew is assigned the moment a work order is created
- A platform that adapts to any domain, asset type, workflow and terminology without code changes
- Secure, per-project role-based access governing who can see and do what
- A scalable, multi-tenant, cloud-native architecture on AWS that grows with the organization

## Next steps

- Onboard a first operating area with live asset and work data
- Enable offline field capture for low-connectivity environments
- Add advanced analytics and condition-based maintenance forecasting
- Integrate with existing ERP, GIS and asset-management systems
- Roll out across additional regions, projects and business units on the multi-tenant platform
- Extend the configurable model to new asset classes and new domains

## About Shri Sai Tech LLC DBA SST

SST is an AWS Partner specializing in AI-driven, cloud-native architecture and secure, compliant solutions across a wide range of industries — including healthcare, finance, education, retail, manufacturing, logistics, energy, government and public sector, telecommunications, and media and entertainment. Partnering closely with our clients, SST rapidly designs and deploys production-ready AI platforms on AWS, bringing AI-powered capabilities to market with speed and confidence.



Generative AI Consulting Services



MSP Partner  
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Marketplace Seller  
Network Competency