



यमुना एक्सप्रेसवे औद्योगिक विकास प्राधिकरण में आपका स्वागत है।
WELCOME TO YAMUNA EXPRESSWAY INDUSTRIAL DEVELOPMENT AUTHORITY

Case Study



Yamuna Expressway Industrial Development Authority (YEIDA)

Presented By: Preview Technologies Pvt. Ltd.

Summary: -

Basically, what we did was to integrate an integrated AWS solution into YEIDA which helped them get a number of advantages:

1. **Centralized Deployment:** This meant that AutoCAD switched its operations to one server on the internet reducing the use of individual systems.
2. **Remote Access:** Employees could use the internet browser from anywhere in the world to access AutoCAD any time and most importantly this was done securely through multi-factor authentication thus enhancing security.
3. **Scalability and Efficiency:** By centralizing deployment, it was easier to assign licenses (license management) as well as enable automatic upgrades of programmes so that scalability as well as effective consumption of resources were improved.
4. **AWS Integration:** Such services as Elastic Compute Cloud (EC2) for scalable computing power, Elastic Block Store (EBS) for storage; and a load balancer for managing traffic flow made this Solution possible with AWS Shared Solutions. Full monitoring, governance and observability was provided by **AWS CloudTrail** along with **Amazon Cloud Watch** in addition.
5. **Enhanced security** the aws web application firewall (waf) assisted in protection against common web vulnerabilities and attacks thereby maintaining system data integrity and safety procedures.
6. **Data protection** aws backup implemented on daily/monthly basis provided reliable data backup and recovery alternatives.
7. the **Aws web application firewall** (waf) incorporated different tactics aimed at counteracting some of the famous web vulnerabilities other than preventing malware that may result to loss systems integrity or sometimes change its confidentiality to enable appropriate updates.

Title: -

Extensibility and Versatility Improvement in Computer-Aided Design Functions for Yamuna Expressway Industrial Development Authority (**YEIDA**).

About the Client: -

Founded under the UP Industrial Development Act of 1976, YEIDA is a government enterprise of Uttar Pradesh. The main goals of this initiative include promoting planned development and supporting industrial and allied activities across the state. YEIDA aims to promote economic growth, generate employment opportunities, and improve infrastructure for industrial expansion and urbanization.

Challenges/Problem Statement: -

The conventional method of deploying AutoCAD among the desktop computers in YEIDA contained heaps of issues such as:

1. **Scalability:** This was a tedious task because there were several instances of AutoCAD that had been installed and subsequently maintained on different desktop computers.
2. **Licensing Problems:** Update of license keys on every machine was mandatory at times causing interruptions in work.
3. **Flexibility:** Restricted office access led to stagnation in productivity since one couldn't use AutoCAD beyond the organization's premises.
4. **Maintenance:** Continuous updates ought to be done manually resulting into downtime problems together with increased pressure on IT divisions.

Solutions: -

A solution hosted at one place was provided to YEIDA on AWS.

YEIDA infrastructure runs on AWS Cloud and uses different services provided by AWS like Elastic Compute Cloud (**EC2**) that contain instances recommended by the customer for YEIDA database and applications in the manner that provides secure and resizable compute capacity in the cloud.

The web and database instances were positioned on a public subnet and each was assigned an **Elastic IP** address. A pipeline interlinked these instances ensuring communication flow. In addition, the web server had an **EBS** volume attached to it for storage.

Both servers were included in a target group that is affiliated with WAF **load balancer**.

We have applied **WAF** rules for YEIDA, such as

- Allow Indian IP,
- Rate limit,
- Invalid Page Names,
- Aws managed rules common rule set,
- Aws managed rules amazon Ip reputation list,
- Aws managed rules anonymous Ip list,
- Aws managed rules known bad Inputs rule set,
- Aws managed rules windows rule set,
- Aws managed rules SQLi rulesets,

AWS Managed Rules Admin Protection Rule Set.

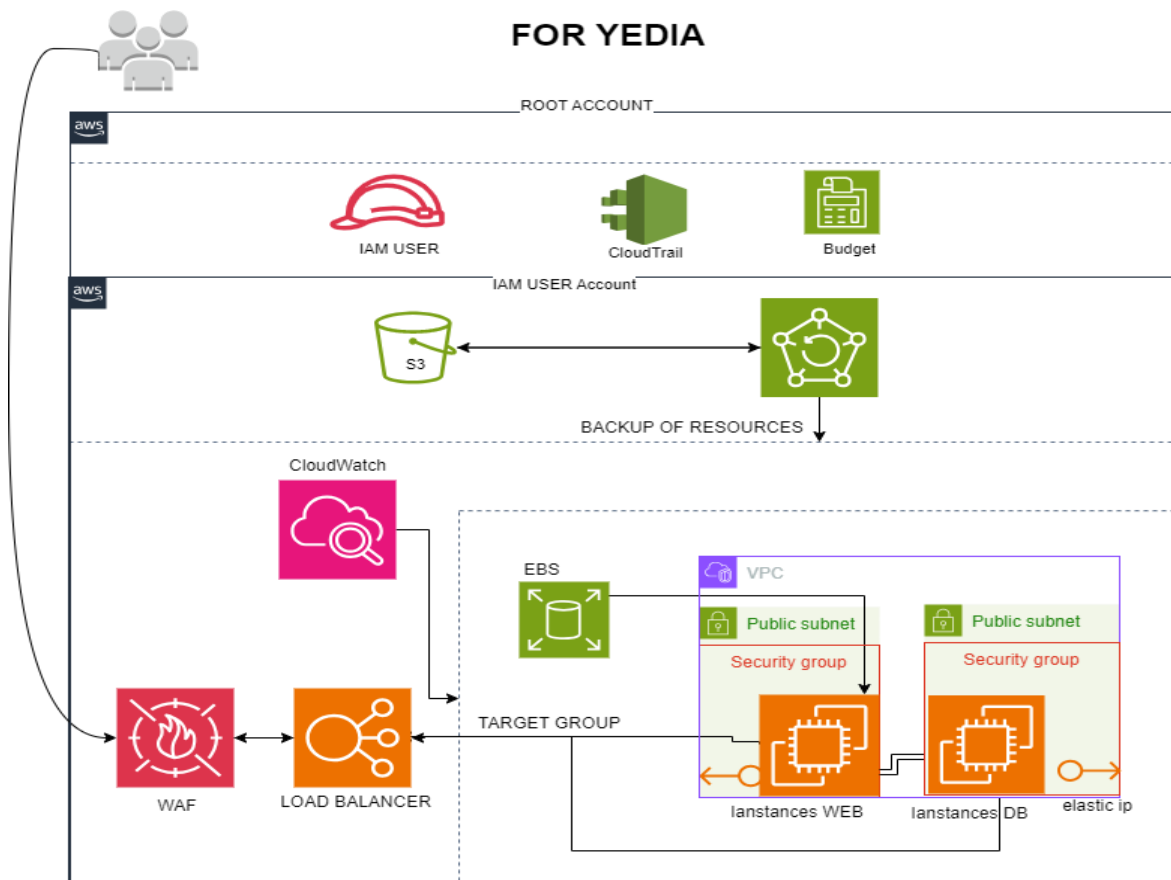
For YEIDA we had also used various other services of AWS like **CloudTrail** which is a service that enables governance, compliance, operational auditing, and risk auditing along with a service for monitoring and observability named Amazon **CloudWatch**.

We implemented **AWS Backup** with daily and monthly backup schedules to ensure data protection and recovery.

Apart from the above functional services, AWS Identity and Access Management (**IAM**) was used for the security purposed which enables YEIDA to manage access to AWS services and resources securely. Using IAM, they can create and manage AWS users and groups, and use permissions (custom and AWS pre-defined policy's) to allow and deny their access to AWS resources

This setup enabled us to cut costs associated with AutoCAD licenses and individual software installations, providing an efficient environment for bulk software provisioning. Additionally, we were able to set up budgets for all resources to maintain cost control.

Architecture Diagram/Overview: -



Tech Stack: -

- **Server:** AWS EC2 for computing resources (load balancer).
- **Security:** AWS WAF for web application firewall, IAM for access management, VPC.
- **Monitoring and Analytics:** AWS CloudWatch for performance monitoring, AWS CloudWatch for data visualization.
- **AWS Backup:** centralize and automate data backup of AWS services.
- **Logging and Auditing:** AWS CloudTrail.

Key Performance Achieved/Outcomes: -

New AWS solution resulted in several quantifiable improvements:

Savings Costs: The use of AutoCAD licenses and software installations cost about 20.38% less.

Flexibility Increase: Employees could access AutoCAD from anywhere, thus increasing productivity and flexibility.

Scalability Improvement: Simplified deployment and management of AutoCAD instances made it easy to scale up or down when required.

Downtime Reduction: The automation of updates and backups led to less manual maintenance work, which reduced the amount of time that systems were down for repairs or upgrades.

Security Enhancement: Applications and data are now more secure due AWS WAF, IAM, and CloudTrail which improved compliance and risk management.

The centralized AWS solution not only tackled previous issues but also brought up high operational efficiency with significant cost reduction as well as better security in case of YEIDA AutoCAD deployment.

Key Benefits Delivered: -

- Ensuring 100% business continuity of the applications and operations of **YEIDA**
- Disaster Recovery case study demonstrates successful execution and assessment of failover as well as fail-back activities.
- Conduct a security vulnerability assessment for both the application and infrastructure to establish entry points for potential attacks.
- Write code for core applications that includes embedded inline threat prevention and data Loss Avoidance Methods. Achieved 100% successful alpha, beta, user acceptance and stress test scenarios and subsequent cases
- Ensuring 100% business continuity for **YEIDA** through 24/7 Managed Support Services by PreviewTech Pvt. Ltd.

Conclusion: -

The process of changing from an old-fashioned computer bound AutoCAD system to a unified internet based one has tremendously improved YEIDA's CAD skills. This newfangled technique guarantees extensibility, adaptiveness and enhanced efficacy. It outlines what should be done to adopt this technology with a view of improving its effectiveness in operations