



Enterprise Mobility Technology



India

MTAP Technologies Cuts Server Migration Staffing by Up to 80% with iOPEX's Claude-Powered Automation

MTAP Technologies, an enterprise employee transport management technology provider, set out to modernize **hundreds of production servers** without interrupting always-on customer environments. iOPEX converted a complex, manually executed migration program into an automated and validated pipeline. The result **reduced engineering requirements, contained downtime, protected data integrity**, and gave MTAP the capability to run future migrations on its own.

Highlights

- MTAP needed to modernize hundreds of live Safetrax production servers holding **millions of database records, and billions in the largest environments**, without disrupting enterprise transport operations.
- iOPEX used **Claude Code** to build an end-to-end migration framework spanning infrastructure provisioning, operating system modernization, database upgrades, runtime updates, application deployment, configuration conversion, and production validation.
- Migration staffing fell **from five engineers to one**. Downtime was held to **two hours per server**, weekend migrations now run **in parallel**, and every environment has migrated with **zero data loss**.

Business Challenge

MTAP Technologies provides **Safetrax**, an employee transport management platform enterprises rely on to run business-critical transportation operations.

The Safetrax production environment spanned **hundreds of virtual machines** on Google Cloud Platform. Those servers carried large customer databases and supported an application ecosystem serving enterprise users around the clock.

MTAP planned to move its production estate **from CentOS to Ubuntu**. The program also required coordinated upgrades across MongoDB, Java, Node.js, web server configurations, applications, services, and scheduled jobs.

Modernization was not optional. Several components of the existing stack had reached or were approaching **end of support**. Staying on the legacy environment increased security exposure, created vendor support gaps, and limited MTAP's ability to adopt modern platform capabilities.

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Each production server held **millions of database records**.

The largest servers held **terabytes of data and billions of records**.

Every migration touched the operating system, database, runtime, application, service, web server, and cron layers **at once**.

Configuration differences between servers raised the risk of missed steps and inconsistent outcomes.

The systems supported live employee transport operations and allowed **minimal downtime**.

MTAP began migrating servers manually. Each server required **four to five engineers** to execute and coordinate the sequence.

At the same time, it could not scale across hundreds of production environments. It also increased the likelihood of execution errors, extended maintenance windows, and confined MTAP to migrating servers one at a time

iOPEX Solution

MTAP Technologies engaged iOPEX to convert the manual migration into a **fully automated production pipeline**.

Using **Claude Code** as an engineering accelerator, iOPEX developed, refined, and tested **more than 100 scripts** covering the complete migration lifecycle.

The framework was completed **within three weeks** and handed to MTAP with migration runbooks, validation procedures, and the full script suite. MTAP's engineering team now schedules and executes migrations across the Safetrax estate independently.

Automated Infrastructure Provisioning

The pipeline begins by provisioning a new **Ubuntu virtual machine** in Google Cloud Platform with the required infrastructure, storage, security, networking, and service configurations.

Automated server creation ensures every target environment is built **consistently** before application and data migration begins.

Operating System and Runtime Modernization

iOPEX automated the move from CentOS to Ubuntu, including:

- Package-equivalence mapping
- Systemd unit translation
- Firewall and service configuration conversion
- Dependency validation
- Permissions checks
- Java modernization from Java 8 to Java 21
- Node.js upgrades across application services

The framework also converted **Apache configurations to Nginx**, covering SSL settings, proxy rules, routing configurations, and service dependencies.

Claude Code helped the iOPEX engineering team generate configuration mappings, refine migration scripts, and diagnose dependency, permissions, and networking issues quickly during testing and cutover.

Controlled MongoDB Upgrade

Safetrax production servers were running **MongoDB 3.4**. A direct move to a current supported version was not feasible. The database had to pass through **validated intermediate upgrade stages**.

iOPEX designed and automated the full MongoDB upgrade path. Each version transition was completed and verified before the pipeline advanced.

This controlled approach let MTAP modernize its database environment while maintaining **application compatibility** and reducing migration risk.

Data Migration with Embedded Validation

The pipeline migrated **hundreds of collections and millions of records** on each server. The largest Safetrax environments held terabytes of data and billions of records.

To protect data integrity, iOPEX embedded validation into **every stage** of the process.

Each collection was checked individually for **record-count parity and integrity**. The automation would not advance until the preceding step passed its defined validation checks.

This validation-led design gave MTAP **verifiable evidence** that the migrated environment matched the original production server.

Application and Service Deployment

The framework automated deployment of Safetrax's primary and secondary applications, along with the **tens of supporting services** running on each production server.

Scheduled jobs were re-established with **staggered execution schedules and overlap guards** to prevent duplicate or conflicting processes.

The automation also restored and validated:

- Application configurations
- Runtime dependencies
- Service connectivity
- Web server routing
- SSL configurations
- Cron schedules
- Production integrations

End-to-End Production Validation

The migration was not treated as complete when data transfer or application deployment finished.

iOPEX built the pipeline to run **end-to-end production validation before sign-off**.

This covered:

- Database record-count parity checks
- Data-integrity validation
- Application health checks
- Service availability verification
- Cron job validation
- Network and routing checks
- Performance baseline comparison
- Production login verification

The final login check confirmed that the migrated Safetrax environment was genuinely serving users, not simply that its underlying processes were running.

Knowledge Transfer and MTAP Enablement

iOPEX handed over **more than 100 pre-tested automation scripts**, the complete migration framework, operational runbooks, and validation procedures.

This transferred the migration capability directly to MTAP's engineering team.

MTAP can now plan, execute, validate, and monitor future Safetrax server migrations **without assembling a four- or five-person team** for each environment.

The Result

The Claude-powered migration framework turned MTAP's modernization program from a resource-intensive sequence of manual activities into a scalable operational capability.

Up to 80% Reduction in Migration Staffing Requirements

A Safetrax server migration that previously required four or five engineers now runs end-to-end with **one**.

That is a **75% to 80% reduction** in migration team requirements per server. It allows MTAP to redirect specialized engineering capacity toward **platform enhancement and other strategic initiatives**.

Parallel Weekend Migrations

MTAP is no longer restricted to migrating production servers one at a time.

Because the workflow is automated and repeatable, **multiple Safetrax migrations can run in parallel** within a single weekend maintenance window. Migration throughput increased, and modernization of the broader production estate accelerated.

Consistent Production Configurations

Automation removed the variation that came with manually executed steps.

Every migrated Safetrax server now follows the **same validated process** for infrastructure provisioning, operating system setup, database modernization, application deployment, service configuration, web server conversion, and final verification.

Migration Capability Delivered in Three Weeks

iOPEX completed the automation build and handover **within three weeks**.

The engagement delivered more than a set of migration scripts. It gave MTAP Technologies a **reusable production capability** that can be applied across hundreds of Safetrax environments.

Two-Hour Downtime Per Server

The automated workflow held downtime to **two hours** for each production server.

Standardizing the execution sequence removed the delays between manually coordinated activities. MTAP can now modernize Safetrax environments with limited disruption to enterprise users.

Zero Data Loss

Every migrated collection is validated through **record-count parity and integrity checks**.

The framework has enabled MTAP to migrate production environments containing millions of records, terabytes of data, and billions of records in the largest deployments, with **zero data loss**.

Legacy Technology Risk Eliminated

MTAP replaced legacy and end-of-support components with a modern technology foundation:

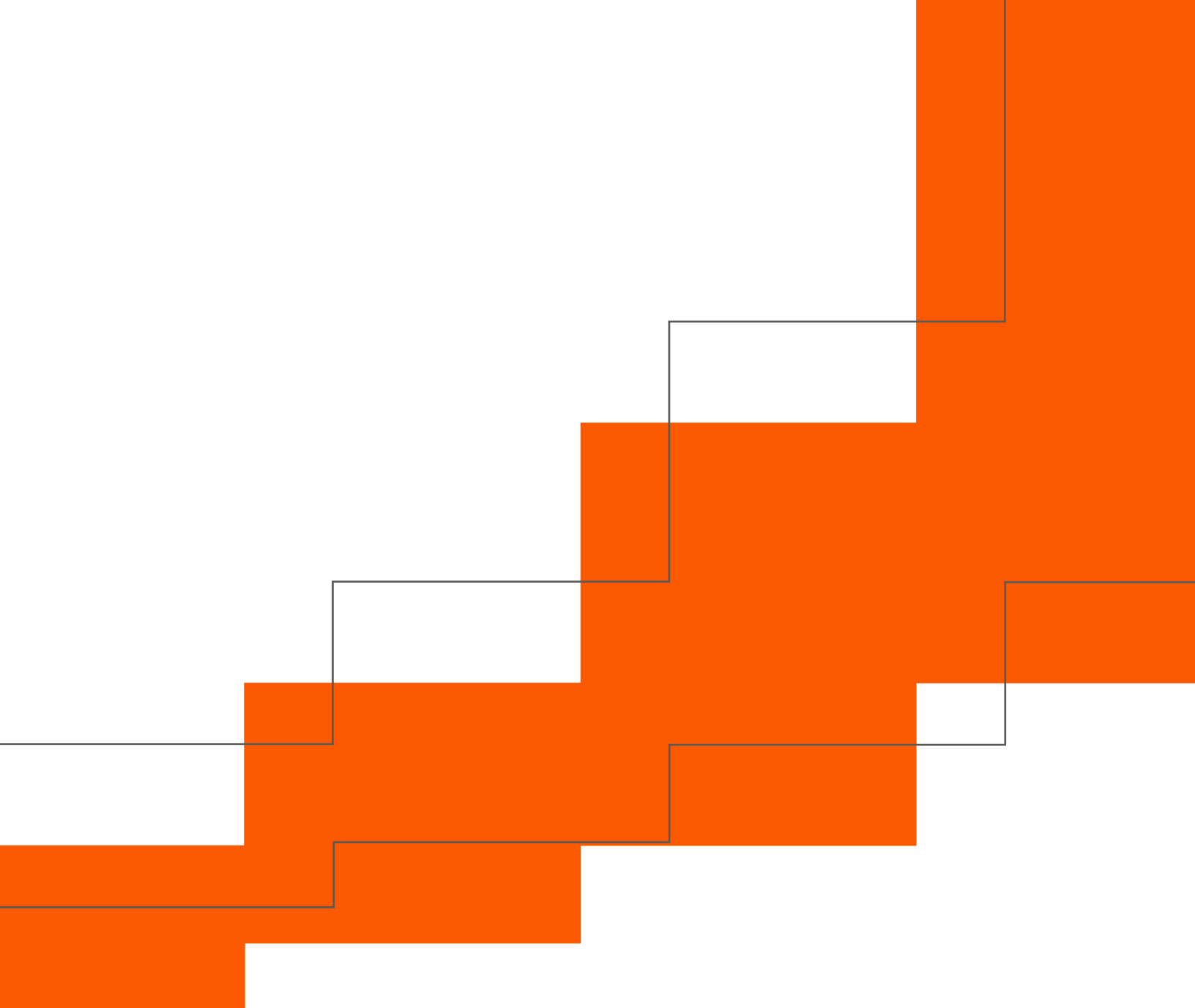
- Ubuntu
- Java 21
- An upgraded Node.js environment
- Nginx
- A supported MongoDB version

The modernization **restored vendor support**, reduced the exposure tied to obsolete infrastructure, and created a more sustainable foundation for the continued evolution of Safetrax.

MTAP Self-Sufficiency Established

MTAP's engineering team now executes server migrations **independently** using the framework and scripts handed over by iOPEX.

Long-term dependence on large migration teams is gone. A complex modernization initiative is now a **repeatable process controlled directly by MTAP**.



About iOPEX

iOPEX Technologies is a new-generation agentic AI and automation-led enterprise transformation partner headquartered in San Jose, California. At the intersection of enterprise operations, agentic AI, and intelligent automation, we deliver Intelligence as a Service. Over 70 global brands trust iOPEX as a strategic partner to turn AI into results that scale. We help clients accelerate enterprise transformation without endless consulting cycles by embedding intelligence directly into workflows. Learn more at www.iopex.com.

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