



"Efficiency that Pays. Sustainability that Lasts"

Advocating for the Adoption of Critical Path Software's TurboTune® and TurboTuneSQL® in U.S. Government Legacy Systems

Introduction

In an era where governmental agencies are under increasing pressure to enhance operational efficiency, reduce costs, and meet stringent sustainability mandates, optimizing legacy systems becomes imperative. Critical Path Software (CPS), though a relatively small and lesser-known company, offers two robust solutions—TurboTune® and TurboTuneSQL®—that are specifically designed to address these challenges. This paper outlines the compelling reasons to advocate for the use of these tools within U.S. government agencies.

Operational Efficiency and Cost Savings

TurboTune® and TurboTuneSQL® are engineered to optimize mainframe performance by intelligently reducing CPU and I/O usage through a combination of proprietary dataset profiling, machine learning (ML)-based tuning algorithms, and automated JCL/script deployment.

- TurboTune® focuses on VSAM optimization and utilizes over 139 proprietary analysis checks on cluster attributes, including CI/CA size, buffer space, control interval splits, and physical layout. The tool identifies inefficiencies and recommends adjustments that optimize space usage, eliminate excessive I/Os, and reduce read/write cycles.
- TurboTuneSQL® targets inefficiencies in DB2 SQL workloads. It analyzes access paths, index usage, and sort behavior, and then recommends improvements to query logic, indexing strategy, and buffer pools to minimize CPU consumption and EXCPs. In addition, TurboTuneSQL® supports:
 - Unused and obsolete package deletion: Identifies and removes dormant or redundant packages that consume catalog space and increase bind and execution overhead, reducing unnecessary CPU cycles.
 - Monitoring and environment visualization for cross-reference: Provides a visual interface to see relationships between programs, packages, and database objects. This accelerates issue resolution and change planning while lowering the chance of redundant analysis cycles.
 - Multi-row fetch enhancement identification: Flags programs that can benefit from multi-row fetch logic, significantly reducing the number of roundtrips between DB2 and application code, thereby cutting CPU time per transaction.

TurboTuneSQL® does the analytical "heavy lifting" by automating the identification of high-cost inefficiencies and generating actionable tuning insights. This reduces the day-to-day burden on DBAs, allowing them to focus on other high-impact tasks, strategic initiatives, and application modernization goals.

These optimizations directly correlate to a measurable drop in peak CPU usage—the primary basis for IBM's Monthly License Charges (MLC). As MLCs often represent 30-50% of a mainframe shop's budget, reductions of 10-20% in CPU usage translate into immediate, recurring cost savings, often in the tens of millions of dollars annually across large federal deployments.

Return on Investment (ROI):

- The cost of engaging CPS is quickly recovered through the monthly savings from reduced MLC charges. CPS offers a low-risk, no-downtime engagement with immediate results, and many clients see full ROI within the first quarter post-implementation.

No Infrastructure Changes Required:

- TurboTune® and TurboTuneSQL® perform analyses entirely outside the existing z/OS environment. There is no need to purchase new hardware, update the OS, or rearchitect applications. The tools generate non-invasive JCL and SQL recommendations that are reviewed and staged by the client's operations team, preserving control and minimizing risk.

Hardware Longevity and Cost Containment:

- By reducing CPU load and disk I/O, the tools ease the strain on processors and storage systems, which helps extend the operational lifespan of expensive hardware. This allows government agencies to defer costly upgrades and replacements, resulting in immediate capital expenditure avoidance and long-term budget flexibility.

Performance Enhancements and Stakeholder Benefits:

- The performance improvements are multifaceted:
 - Internal operations benefit from faster batch processing and reduced SLA breaches.
 - Developers and analysts experience improved job turnaround times and system responsiveness.

- End users (government employees and citizens alike) benefit from more responsive applications and online services.
- Operations teams spend less time addressing performance bottlenecks, freeing them up for higher-value tasks.

Strategic Flexibility and Scalability:

- As workloads increase or shift due to policy changes, agency growth, or emergency response scenarios, the optimized systems remain flexible and responsive without requiring proportional increases in compute capacity.

Minimal Staff Disruption and Risk-Free Deployment

One of the most compelling reasons for adopting TurboTune® and TurboTuneSQL® is the minimal resource requirement for implementation. These tools are:

- **Automated and Low-Touch:** CPS solutions use proprietary AI engines to generate recommendations, significantly reducing the need for specialized staff analysis or lengthy discovery phases. Staff engagement is limited to reviewing output reports and staging enhancements—all of which can be done using existing procedures.
- **Turnkey and Non-Intrusive:** There is no change to business logic, application code, or runtime behavior. This guarantees zero disruption to mission-critical workloads and ensures full backwards compatibility.
- **No Need for Expert Consultants:** The intelligence is built into the software. Unlike traditional tuning engagements that require costly consultants, CPS's tools provide a self-contained, outcome-focused path to performance optimization.
- **Change Control Friendly:** All changes are staged in existing environments using JCL or SQL scripts, following the agency's existing change control practices. There is no forced automation or override of in-place standards.

These attributes make CPS offerings highly accessible and scalable, even for agencies with limited in-house mainframe expertise. The minimal staff burden and no-risk deployment model removes traditional barriers to mainframe optimization and makes CPS the obvious choice.

Alignment with Sustainability Mandates

Federal and state regulations are increasingly mandating reductions in carbon footprints and energy consumption. The Inflation Reduction Act of 2022, for instance, underscores the federal commitment to decarbonization across various sectors. By optimizing CPU workloads,

TurboTune® and TurboTuneSQL® contribute to lower energy consumption, thereby reducing greenhouse gas emissions. This directly supports agencies in achieving compliance with sustainability mandates and contributes to broader environmental objectives.

Enhancement of System Reliability and Longevity

Reduced CPU activity alleviates stress on hardware components, leading to decreased thermal output and wear and tear. This not only extends the lifespan of existing infrastructure but also minimizes the frequency of unexpected downtimes and maintenance requirements.

Consequently, agencies can defer capital expenditures associated with hardware replacements and reduce e-waste, further aligning with sustainability goals.

Support for Greenhouse Gas Emission Reductions

Optimizing mainframe operations with CPS tools directly impacts Scope 2 emissions by lowering the energy required for data center operations. Additionally, by extending hardware life and reducing the need for new equipment, there is a positive effect on Scope 3 emissions, which encompass indirect emissions from the value chain. These reductions are vital for agencies striving to meet federally mandated emission targets.

Compliance with Regulatory Frameworks

The U.S. government's focus on sustainability is evident in various legislative frameworks that compel agencies to adopt environmentally friendly practices. Implementing TurboTune® and TurboTuneSQL® facilitates compliance with these regulations by providing measurable improvements in energy efficiency and carbon footprint reduction. This proactive approach not only ensures adherence to legal requirements but also positions agencies as leaders in sustainable governance.

Conclusion

Incorporating the use of Critical Path Software's TurboTune® and TurboTuneSQL® into the legacy systems of U.S. government agencies presents a strategic opportunity to enhance operational efficiency, achieve significant cost savings, and fulfill sustainability mandates. Despite CPS's modest market presence, the proven efficacy of their solutions in optimizing mainframe performance makes them a valuable partner in the government's pursuit of efficiency and environmental responsibility. The Department of Government Efficiency should, therefore, advocate for the adoption of these tools to realize both immediate and long-term benefits.