

NEC and Gurobi Optimization Sign System Integration Partnership Agreement

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By combining NEC's quantum computing technology with Gurobi's decision intelligence technology, NEC can further support customers in making optimal business decisions.

TOKYO & BEAVERTON, Ore.--(BUSINESS WIRE)-- **NEC Corporation** (NEC; TSE: 6701) today announced that it has signed a system integration (SI) partnership agreement with **Gurobi Optimization**, LLC (Gurobi) to integrate Gurobi's mathematical optimization solver, the **Gurobi Optimizer**, into its solutions. The Gurobi Optimizer is the world's leading solver, powering optimal decision-making for over 2,500 companies across 40+ industries worldwide.

With this agreement, NEC will integrate the Gurobi Optimizer into its **Management and Business Optimization Consulting Service**—which helps customers accelerate digital transformation and support business decisions—starting today. Combined with the quantum computing technology and Artificial Intelligence (AI) that NEC already provides, this partnership will support customers' optimal business decision-making in a comprehensive manner—from optimization method studies to application verification and tuning.

As business and global challenges become increasingly complex and large-scale—including problems that cannot be solved by existing computing technologies—organizations are looking to quantum computing technology as one of the solutions. Quantum annealing shows promise with its ability to solve combinatorial optimization problems, such as human resources planning, dispatch scheduling, and delivery route optimization. However, many of these problems are inherently complex and intertwined with multiple problems, so a single approach may not be able to achieve the expected results.

To solve these problems, it is important to first separate them into subproblems and then use the best approach for each subproblem—using quantum computing technology, AI (e.g., machine learning), and mathematical optimization, in the right place and at the right time.

Selecting the Right Approach for Each Type of Subproblem

Business Problem		
Subproblem A	Subproblem B	Subproblem C
Artificial Intelligence (e.g., Machine Learning)	Linear and Mixed Integer Programming	Quantum Computing (e.g., Quantum Annealing)
Genetic Algorithms	Boolean Satisfiability Problems (SAT)	Heuristics

Mathematical optimization (e.g., linear programming and mixed-integer programming) is a problem-solving method that involves defining real-world objectives, constraints, and decision variables and then using a mathematical optimization solver (Gurobi Optimizer) to quickly identify the optimal decision out of trillions of possibilities.

"Through our alliance with NEC, we're not just integrating technologies; we're creating a future where optimal decision-making is more accessible," said Duke Perrucci, CEO of Gurobi Optimization. "Combining Gurobi's decision-intelligence technology with NEC's quantum computing solutions represents a paradigm shift in the world of optimization. Our commitment is to ensure businesses navigate the ever-complex landscape of decision-making with unparalleled efficiency and accuracy."

NEC will provide Gurobi Optimizer application services, with technical support from **October Sky Corporation**, a branch office of Gurobi in Japan. NEC will also train its employees in Gurobi Optimizer application skills.

NEC has helped many customers to optimize their planning operations, such as production planning and delivery planning using quantum computing technology through its **NEC Vector Annealing Service**. Going forward, NEC will leverage its track record of providing optimization solutions in various business fields, delivered by its highly skilled optimization experts, to help customers identify optimal solutions to complex problems—by combining the Gurobi Optimizer with NEC's quantum computing technology and AI.

"By integrating Gurobi into our solutions, we aim to empower our customers to make optimal business decisions in an ever-evolving, complex landscape," said Shigeki Kikuchi, Corporate SVP of the Global Innovation Business Unit, NEC Corporation. "This collaboration is a testament to NEC's dedication to innovation and providing comprehensive solutions that address the diverse challenges our customers face."

To learn more about NEC's Management and Business Optimization Consulting Service, visit <https://www.nec.com/en/global/quantum-computing/index.html>.



About Gurobi Optimization

With Gurobi's decision intelligence technology, you can make optimal business decisions in seconds. From workforce scheduling and portfolio optimization, to supply chain design and everything in between, Gurobi identifies your optimal solution, out of trillions of possibilities.

As the leader in decision intelligence technology, Gurobi delivers easy-to-integrate, full-featured software and best-in-class support, with an industry-leading 98% customer satisfaction rating.

Founded in 2008, Gurobi has operations across the Americas, Europe, and Asia. Over 2,500 global customers across 40+ industries run on Gurobi, including SAP, Air France, and the National Football League, as well as over 80% of the world's leading enterprises. For more information, please visit <https://www.gurobi.com/> or call +1 713 871 9341.

About NEC Corporation

NEC Corporation has established itself as a leader in the integration of IT and network technologies while promoting the brand statement of "Orchestrating a brighter world." NEC enables businesses and communities to adapt to rapid changes taking place in both society and the market as it provides for the social values of safety, security, fairness and efficiency to promote a more sustainable world where everyone has the chance to reach their full potential. For more information, visit NEC at <http://www.nec.com>.

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