

# REDUCE COMMERCIAL HVAC ENERGY USE. GUARANTEED.

Optimum Energy's integrated software solutions are proven to reduce commercial HVAC system energy use by 30 to 60%. Our solutions apply advanced relational control strategies in combination with Web-based measurement, verification and management services to transform the way all-variable-speed commercial HVAC systems are optimized and managed. With Optimum Energy, you benefit from constant efficiency optimization plus the real-time information you need to verify energy and operating cost savings, and ensure those savings persist year after year.

Before installation, Optimum Energy's Engineering Services team will evaluate your project so you know what savings you can expect. A site assessment determines plant readiness, and a detailed return-on-investment analysis includes recommended improvements (e.g., installation of variable frequency drives). We then work with the contractor of your choice for system installation. We also provide integration testing, and long-term measurement, verification and management services to guarantee ongoing performance.

## OptimumHVAC™

OptimumHVAC software uses patented relational-control methodologies to automatically operate all HVAC equipment (including chillers, pumps and fans) on a variable speed basis, based on real-time building loads. In addition to Optimization,

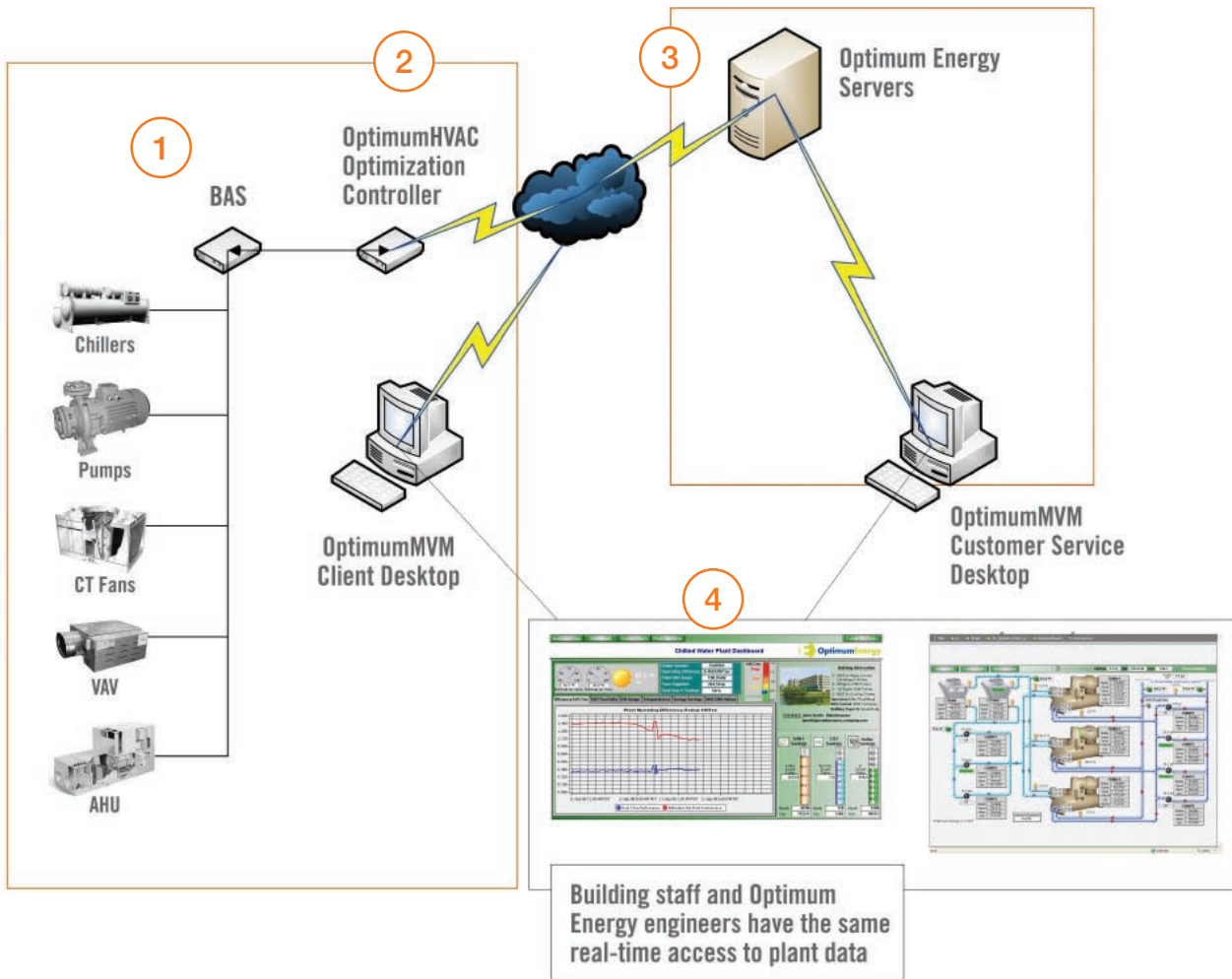
OptimumHVAC's online services make it easy to track real-time energy performance and detect, diagnose and correct system faults as they occur to prevent performance degradation.

OptimumHVAC is comprised of three solutions:

- **OptimumLOOP™** software reduces energy use of centrifugal chiller HVAC systems in buildings 100,000 sq. ft. or larger, and in district cooling plants.
- **OptimumTRAV™** software extends the capabilities of direct digital controls (DDCs) to modulate air flow in air handling systems for more precise and efficient air temperature management.
- **OptimumMVM™**, a secure, online measurement, verification and management service provides real-time and historical performance information to streamline operating processes and enable sustained energy reductions and cost savings.

Optimum Energy's solutions are providing proven energy savings and rapid ROI in a wide range of building types, including: commercial high rise office towers, schools and universities, federal and state government facilities, data centers, labs, medical facilities, airports, hotels, casinos and shopping centers.

# OptimumHVAC™ Network Architecture



- ① The existing Building Automation System (BAS) controls installed HVAC equipment.
- ② The OptimumHVAC optimization controller is a multi-protocol appliance that is networked with the BAS. Every 30 seconds, the controller collects equipment trend data points from the BAS, and sends control sequences calculated to maximize system energy efficiency back to the BAS.
- ③ Equipment trend data points (typically hundreds per HVAC system) are continuously captured and stored in Optimum Energy's secure performance data servers for reporting and analysis.
- ④ A secure, password protected online portal is accessible at any time by authorized personnel (including building owners/operators, contractors and Optimum Energy) that presents easy-to-understand graphs and charts to view real-time and historical plant efficiency and equipment status, and to analyze point-specific trend data.



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**Do Good. Do Well. And Prove It.**

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