

Utility Enterprise Solutions

Energy Optimisation Portal

- > Web based portal for Enterprise-wide real-time data integration, analysis and visualisation
- > Integrate data from real-time sources, supervisory systems and enterprise data repositories into single system
- > Applications for management decision support for optimising operations across the enterprise

Inter-Utility Data Exchange

- > CIMXML based solutions for exchange of power system data between utilities
- > Real-time exchange of data and models enable faster, reliable and efficient power exchanges
- > Enables utilities to participate in power trading and energy markets

Utility Enterprise Application Integration

- > Tools and technologies for integrating enterprise applications with real-time applications
- > Based on IEC 61970, 61968 standards, and industry standard messaging/middleware architecture
- > Integrate SCADA/EMS/GIS/OMS/TMS/CIS with ERP/RDBMS/billing/MIS/Web-based systems

Generation

- Availability Based Tariff
- Modeling, Simulation and Optimisation
- Load and Frequency Forecasting
- Performance Management
- Unit Commitment and Merit Order Dispatch
- Intelligent Alarm Management

Transmission

- SCADA / GIS / Power Analysis Software Modules
- Control Centre Communications
- Power System Modeling, Analysis and Optimisation
- Power System Automation
- Power System Communications
- Power System Engineering

Distribution

- Telemetry and Telecontrol
- SCADA / GIS / Distribution Analysis Software Modules
- Modelling, Analysis, Optimisation and Forecasting
- Distribution Automation and Communications
- Demand Side Management
- Energy Accounting and Loss Reduction

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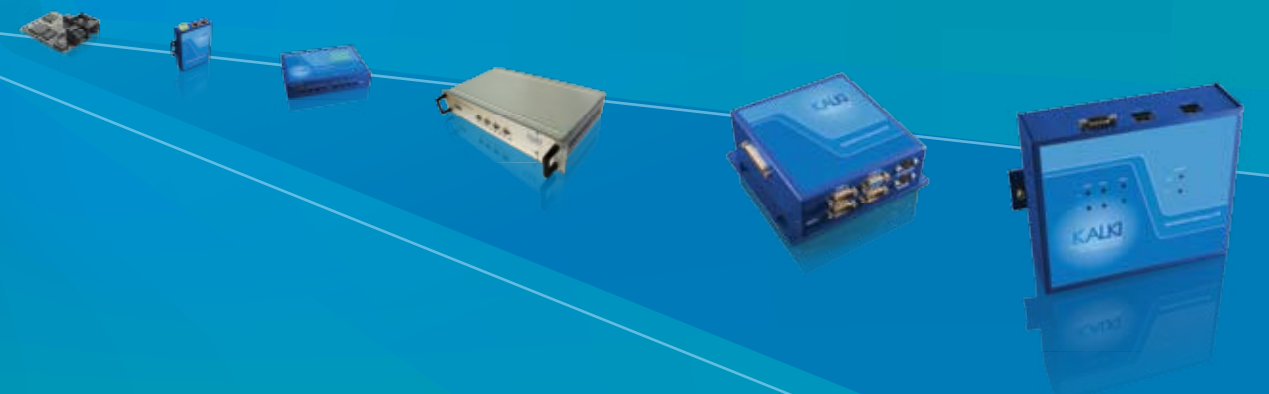
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KALKI

COMMUNICATION TECHNOLOGIES

CONTROL • COMMUNICATIONS • COMPUTING

Kalki Communication Technologies Private Limited was founded in 1998 with the vision of becoming the leading provider of standards-based, integrated Control, Communication and Computing solutions to OEMs, System Integrators and End-Users in the Energy industry. Continuous innovation through research and development is at the core of Kalki's corporate philosophy. Over the years, Kalki has become the preferred partner for a wide base of multinational clients, known for high quality engineering, automation and communication products, solutions and services. Today, Kalki's solutions are successfully deployed in over 15 countries in 4 continents, across the full spectrum of the Energy value chain.



Kalki Communication Technologies is committed to providing state-of-the-art solutions to the industry, combining the latest advances in power systems engineering and information technology, based on international standards. We help customers monitor, control, visualize, integrate and optimize their enterprise operations in real time.

Kalki Communication Technologies offers Design, Consulting, Engineering Analysis and Optimisation, Automation Engineering, Communication Protocol solutions and Application Software development.

Utilities around the world face change today on a scale not seen since the early 1900s. Powerful forces such as deregulation, environmental issues, heightened security concerns, and a fragile grid system are transforming the industry. With the transition to a competitive marketplace and with increased demand now testing the limits of the power grid, it is imperative that utilities become more agile and adopt technologies that support regulatory compliance, increase operational efficiency, and enable greater control over the grid to enhance customer service.

Smart energy distribution management systems play a crucial role in supporting the needs of the next-generation utility. Encompassing a wide range of advanced capabilities—including advanced meter infrastructure (AMI), demand response, supervisory control and data acquisition (SCADA), capacitor bank control, and automated feeder switching—these

systems provide utilities with a powerful way to meet and exceed the expectations of customers, regulators, and investors.

Kalki Communication Technologies offers complete solutions to address the needs of utilities today. As a leading provider of systems and services for energy management operations, and as a provider of consulting services and solutions to many utilities, we leverage our expertise in real-time operations and enterprise applications. Business and IT are synchronized to capitalize on change, to provide both the dynamic, fault-tolerant infrastructure and the comprehensive industry solutions utilities need to meet next-generation energy requirements.

Around the world, Kalki Communication Technologies has demonstrated the ability to architect, integrate, manage, and support highly advanced technological solutions, drawing upon our particular strength in

real-time control and automation systems, utility communication systems and enterprise integration. With our collaborative business approach, advanced technologies, and comprehensive services, Kalki Communication Technologies can address the real issues utilities face today, including outage and restoration, safety, demand response, forecasting, and power management.

To meet elevated expectations, business-critical functions must be continuously available, and applications must be easily able to share information among corporate systems. In addition, as new applications are introduced, they must be integrated into existing infrastructures quickly and seamlessly. Also, by leveraging standard-based systems interfaces and processes, we can help utilities integrate information across the enterprise. Most important, we can introduce next-generation capabilities while preserving existing investments.

Value proposition for utilities

- > Improved contract scorecard
- > Increased manageability of the distribution infrastructure
- > Increased profitability
- > Faster outage restoration
- > Reduced outages
- > Improved trading risk management
- > Reduced cost by improving and monitoring operations



Solutions offered by Kalki Communication Technologies

Electric Utility SCADA	Communication Security Solutions
GIS solutions	Protocol converters and Gateways
Power System Modeling and Analysis	Enterprise Application Integration
Automation Engineering Services	Utility Integration Bus
Utility Communication Solutions	Design and Consulting

With this powerful set of capabilities, utilities can respond to energy demands more efficiently and effectively while decreasing reliance on new generation facilities to support increased loads. It is also a compelling response to governmental mandates for security, energy supply/demand alternatives, and capital investments in infrastructure improvements. Most important, it ensures that the right action is taken and the right information is delivered where and when it is needed—without exception.

Standards-based Communication and Application Integration

Integration of legacy systems with new systems is often a problem faced by utilities. Integration of multi-vendor systems is also a problem involving significant expenditure for customized interfaces. Kalki Communication Technologies provides standards-based integration between legacy, multi-vendor and new automation, communication and software systems, using open, internationally accepted standards. Examples of such standards include:

- IEC 60870-5: SCADA communication to remote stations
- IEC 60870-6: Inter-Control Center Communications (ICCP)
- IEC 61850: Communication architecture for substation communications
- IEC 62056: Automated Meter Reading Protocol (DLMS)
- Multispeak: Application Interface Standard
- CIMXML: Power System Model data exchange
- IEC 61968, IEC 61970: Application Integration Specifications