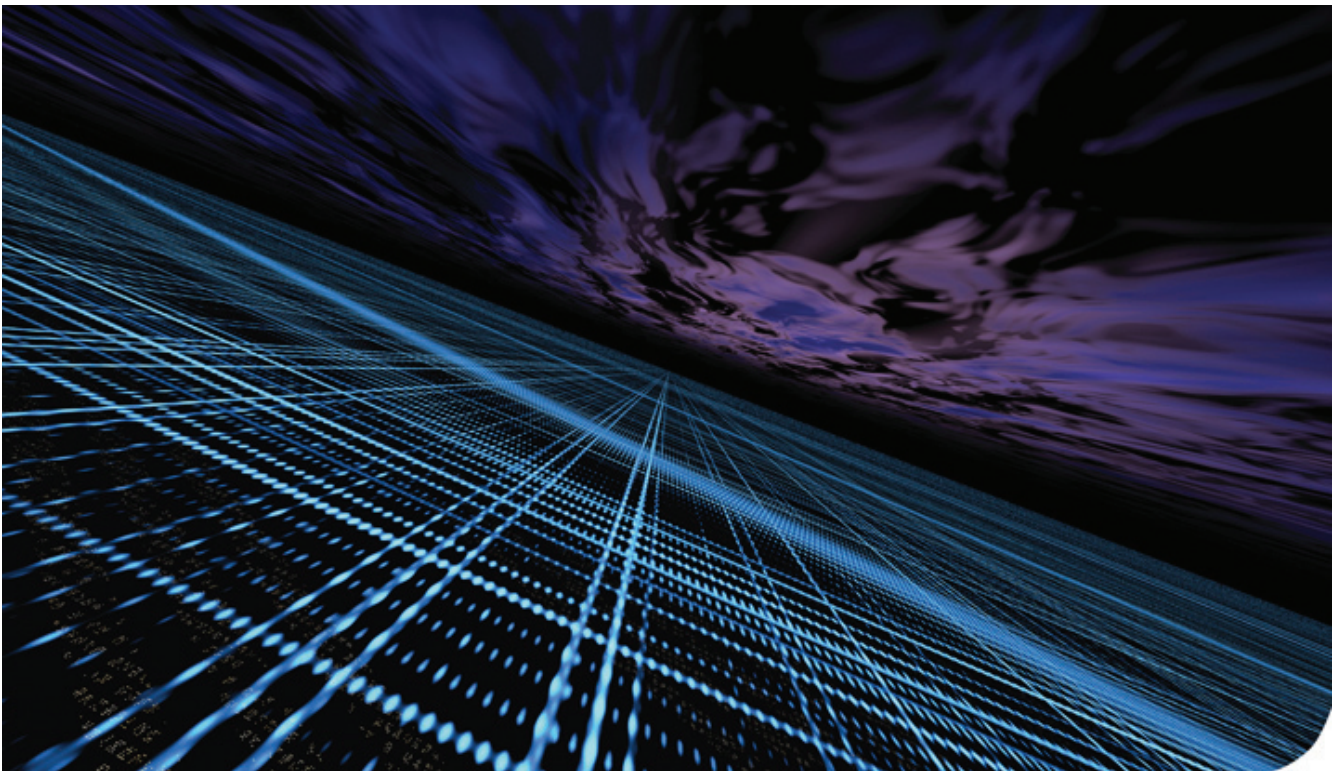


Integrated network strategy for utilities.

Today's utility network environment.



AMI, Smart Grid, Home Area Networks, Mobile Workforce Automation. Pick up any utility publication or attend any conference and these are the hot topics of the industry. The business and the regulatory bodies are requiring that these technologies be deployed by the utility. However, these applications are heavily dependent on having a robust, secure, communications network. Are utilities ready to deploy these technologies now? Can they do so in a cost efficient manner?

The communications network has become as important to the utility as the electric or gas transmission and distribution networks. Over the last 10-20 years, utilities have been challenged with the need to transfer huge amounts of data from the plants, the energy

network, and the field to applications to support operational and analytical functions. However, over this time, several issues have evolved around this network environment. These issues potentially challenge the utility's ability to efficiently and cost-effectively design and deploy AMI, the Smart Grid and Mobile Workforce applications:

- Aging obsolete non-integrated networks – Utilities have a collection of many different, non-integrated networks that have been implemented to support a specific function such as load shed or SCADA. They often run over an aging infrastructure that is costly to maintain and difficult to upgrade.
- Lack of network management and optimization tools – There is limited use of common network management tools partly

due to networks evolving as siloed and isolated applications and partly due to the networks running over proprietary protocols.

- Siloed and Aging workforce – Because the networks have evolved to support specific, business-area needs, the support of the networks are often managed by isolated groups within the utility that often have staff that is close to retirement.
- Demand for increased reliability – Expectations of reliability of the networks have increased as the utility has become more dependent on these networks to support operational and analytical functions. As the public Internet has become ubiquitous and reliable, the expectations of the utility's networks have increased as well.

As the emergence of AMI, the Smart Grid, and the expansion of the Mobile Workforce Automation and computing occurs, while the business is also asking for increased capabilities and reliability from the utility's existing network applications, utilities are facing large and potentially very expensive decisions on how to deploy these new technologies.

Integrated Networks

KEMA believes this is the opportune time for utilities to develop an enterprise network vision that integrates existing and new networks from the perspectives of technologies, workforce, and operations. This vision will address the existing business functions while addressing the needs of AMI, Smart Grid, and mobile computing. The vision needs to address several components including the following:

- High Availability Reliability – These networks require high availability and reliability that ensure that Smart Grid systems can capture their benefits and communications outages do not cause energy delivery outages.
- Low Latency – Many Smart Grid, Distribution Automation and AMI applications require low latency to support moving information between the energy network and the office for events such as outage prediction, isolation and service recovery .
- Bandwidth – The transfer of meter data from millions of meters and distributions devices requires a data network with significant bandwidth.
- Security – Securing the data that will be flowing through a combination of public and private networks is critical to support the integrity and reliability of the utility's energy network.
- Network Management – The need to prioritize and ensure the reliability of the networks are essential to support the mission critical applications that use this data.
- Scalability – Emerging technologies such as Home Automated Networks (HAN) and Systems Security have potentially very large data transport needs. Therefore, the networks installed now should have some anticipation of these needs, while still being cost efficient to support the cost benefit analysis of the currently defined requirements.

KEMA's Leadership

KEMA is an industry leader with extensive experience across the world in assisting utilities with the development of strategic plans, business case analysis, network design, and the procurement and deployment of enterprise networks to support their current and future business needs. KEMA has worked and is currently working with leading utilities in the development of an enterprise network strategy that converges existing and future network needs into a coherent and unified network strategy.

About KEMA

KEMA specializes in business and technical consulting, operational support, measurement and inspection, testing and certification. With 80 years of experience in serving energy and utility clients, KEMA has developed a reputation for integrating deep technical and functional capabilities with management expertise to provide solutions that deliver profitable, reliable, sustainable results. More than 500 energy and utility clients in over 70 countries rely on KEMA's impartial, objective and expert consulting services to plan, build and maintain their strategies for growth.

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