

Internet Protocol and the Smart Grid

The Smart Grid networks the power system for communication... and Internet Protocol should be the language it speaks.

The Smart Grid begins with a network infrastructure, overlaid atop the existing power grid and enabling data-networked devices to communicate. These devices will deliver a growing range of applications (e.g., smart metering, distribution automation), and they will communicate over a variety of physical media at the utility distribution level (e.g., radio frequency, Ethernet, etc.). Utilities and their customers benefit from Smart Grid deployments in which devices and media share an open, common, and interoperable language, rather than operating through closed, proprietary, and independent systems. For a diversity of reasons, the Smart Grid should speak Internet Protocol (IP).

IP is proven at scale

The challenge of modernizing the electricity system demands solutions that have been proven in the field at massive scale. The power grid is a massive, ubiquitous infrastructure. The vital product it delivers, at no less than the speed of light, is the mission-critical lifeblood of our modern economy. Accordingly, the consequences of failures are costly, and the margin for error is thin. As utilities and regulators assess the technology risk of Smart Grid innovations, it is important to recognize that IP has been utilized as the networking standard for billions of endpoints in the broadband, IT, and telecom sectors. While many Smart Grid devices, applications, and media must still pass muster, building the networks is the place to start and IP is the only networking standard that has been proven at scale.

IP is a foundation for security

For obvious reasons, Smart Grid network systems must be impenetrably secure. And the most secure networks are the ones that have been developed in public, rather than in private. Furthermore, security requires being field-hardening through experience. Developed as an open, public standard and improved through years of experience in the broadband, IT, and telecom sectors, Internet Protocol – especially its most advanced iteration, Version 6 (IPv6) – passes these tests and offers a solid foundation for the implementation of utility-grade security measures and algorithms.

IP is ready; why reinvent the wheel?

The urgency of economic recovery demands swift action, with President Obama calling for the Smart Grid to reach 40 million homes within the next few years. While IP may suffer from imperfections in the same way that the English language often is curiously inconsistent, the practical reality is that developing a new standard will take years, perhaps even decades, to invent an “Esperanto” for the Smart Grid. On the other hand, IP, like English, is universally recognized, broadly utilized, and globally standardized. IP is ready to serve as the *lingua franca* for the Smart Grid as the need for economic stimulus demands swift deployment of Smart Grid networks.



Silver Spring Networks builds standards-based, Internet Protocol (IP) networks for the Smart Grid that enable utilities to make the business change necessary today to improve efficiency, reliability and customer service while also reducing costs. www.silverspringnetworks.com