

SSL Postings

U.S. DEPARTMENT OF ENERGY

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Connecting With IT, the IoT — and Each Other

The rapid emergence of the Internet of Things (IoT) has helped put connectivity in a prominent position on lighting's cutting edge. Last week in Santa Clara, CA, at DOE's second Connected Lighting Systems (CLS) Workshop, we gained valuable insight into the synergy between the IoT and lighting, and caught a glimpse of where that synergy might be headed. For several reasons — including its microelectronic architecture, which facilitates the integration of network interfaces and sensors — SSL is an especially good fit for both connected lighting and the IoT in general. That's why 170 thought leaders from the lighting and IT industries gathered in Santa Clara to take a deep dive into key CLS issues and discuss potential paths forward.



DOE's overarching concern in all of this, of course, is to save energy. And it's clear that enabling intelligent lighting devices with the right data can result in greater energy savings in buildings and cities — and the connectivity that facilitates that data enablement provides a platform for other non-energy benefits and revenue streams that can accelerate adoption. In its role as vendor-neutral facilitator and convener, DOE aims to accelerate the development and deployment of connected lighting systems, create tight information feedback loops to inform manufacturers and system implementers of needed improvements, and increase industry visibility and transparency on what does and doesn't work — all while promoting collaboration between the various stakeholders. Hence last week's workshop, which focused on facilitating conversation between manufacturers navigating today's "Wild West."

The keynote talk was given by Tanuj Mohan of Enlighted, who painted a compelling picture of how lighting fits in naturally with the IoT. Noting that today's large buildings produce a billion times less data than jet engines produce and use to optimize their performance — when in fact those same jet-engine design approaches and analytics could be used to optimize our buildings using a wide range of environmental, operational, and behavioral data — Tanuj explained why lighting is a such an ideal place to install the sensors that comprise the IoT's "nerves." He noted that lighting covers every square foot of building space, providing complete coverage and access to power, while the sensors provide the lighting with intelligence. And because conventional, uncontrolled lighting is so wasteful of energy, the efficiency that a connected system brings to a building helps pay for the entire installation. However, Tanuj observed that with IoT technology exploding and new companies rushing to market, there are so many vendors, standards, and levels of compatibility, interoperability, and interchangeability that purchasing and facilities managers are tending to hold off on installing connected lighting until the situation stabilizes.

That's why one theme heard over and over at the workshop was the need to accelerate the adoption and maturity of standards — not an easy or straightforward task. Another was the importance of both better understanding the needs of customers, and helping them understand what technology currently makes possible — because after all, they're the ones who'll be putting connected lighting into practice and validating its true value. A third recurrent theme was the inevitability of lighting's convergence with the IoT and role as a major IoT backbone. In many places, that convergence has already begun. Richard Webster, who's in charge of street lighting in the UK county of Suffolk, noted that virtually all of the jurisdictions in his neck of the woods are seriously considering or already installing connected street lighting, partly based on its very successful implementation in his county.

However, that doesn't mean industry can now sit back and coast down the home stretch. Far from it; although the success of connected lighting may be likely, the paths to success are still unclear. While conceding that lighting is poised to play a pivotal IoT role in buildings, Brian Chemel of Digital Lumens — speaking on a panel about how CLS should be integrated into the IoT — cautioned that this is far from a done deal, and that industry has much to do in order to make it happen. He warned against making the kinds of mistakes that could undermine lighting's chances to play a major role in the IoT — such as underestimating one or more stakeholders or players, focusing on technical specs instead of on end-user value, and downplaying the importance of interoperability. Still, Brian's overall tone was very optimistic, given SSL's inherent compatibility with intelligence, sensing, and networking, and the fact that, as he put it, lighting currently is the only IoT platform that actually pays for itself.

Brian's co-panelist, Sameer Sharma of Intel, said we've already reached an inflection point where the IoT is economically viable and predicted that 35 billion devices will be connected by 2020, but emphasized a number of keys to unlock the open-platform approach that's essential to realizing its full potential — including consensus collaboration, public-private partnerships, operational models, and open horizontal test beds. A workshop panel on test beds stimulated a great deal of discussion on their value and how they could or should be structured, with a number of speakers and attendees emphasizing the need for "plug-fests" (where devices are brought to test interoperability).

These are the very early days of connected lighting and the IoT, which means that there's much learning to come. And as we heard more than once in Santa Clara, that learning is most effective when it's divorced from sales pitches. DOE has played a widely acknowledged role in helping the lighting industry navigate the transition to SSL, and is looking to do the same for connected lighting, as a stakeholder focused on the success of the technology rather than on any particular implementation or approach. We encourage all stakeholders to offer suggestions as to how we might make the biggest impact in our independent third-party role, and to join the conversation at the next Connected Lighting Workshop.

For those of you who missed last week's gathering (which included far more than what's in this *Posting*), as well as those who attended but would appreciate having something to refer back to, the presentations will be posted soon on the [DOE SSL website](#), to be followed by workshop highlights.

Best regards,
Jim Brodrick

As always, if you have questions or comments, you can reach us at postings@akoyaonline.com.