

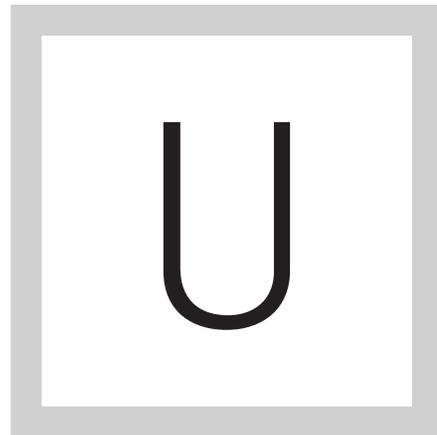


► *E-Guide*

TELECOM PROVIDERS LEAD TO IOT MARKET SUCCESS: HERE'S HOW

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SING TELECOM PROVIDERS' communications and connections experience could strengthen the evolution of the Internet of Things market. Our expert offers six reasons why.

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INTERNET OF THINGS MARKET COULD ADVANCE WITH TELECOM HELP

Tom Nolle, President, CIMI Corporation

Suppose that for a new technology to be successful, it had to be deployed along every street and highway in every rural and urban area. Suppose it had to touch everyone, every single day. Suppose also that this technology would be the largest source of new Internet users, the largest consumer of IP addresses and the largest user of wireless spectrum.

Yes, we're talking about the Internet of Things (IoT). And a burning question in its development is: Who could be at the center of a successful IoT evolution to make sure access and standards are in place? The answer is the telecom providers that provided the closest thing we've had to the IoT opportunity -- the public telephone network.

When the notion of a public telephone service first arose early in the 20th century, business and government realized that the opportunity would almost surely generate a flood of market entrants, each of which would adopt proprietary technology to ensure they didn't lose market share to others. We would

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have had a hundred phone systems, none of which would allow anyone to call everyone, and all of which would be inefficient in their use of technology, pole space and human resources. A regulated monopoly, in some form, was the universal answer. In the U.S., it was the Bell System.

The evolving Internet of Things market presents many of the same problems that early telephony posed. You can easily imagine a host of competitors fighting to install sensors on major commercial routes, but nobody caring much about rural roads. You can see how information would be partitioned by the IoT provider with little or no way to correlate all the data to extract maximum value from it. You can even see the problems we first faced with the Internet -- spoofing, hacking, fraud and even real personal risks. Telecom providers can address these issues and more.

SIX REQUIREMENTS FOR INTERNET OF THINGS MARKET SUCCESS

Critical mass of information. The first requirement for the successful evolution of the Internet of Things market is information in critical mass. To encourage use, there must be enough information to be useful, which means someone must act as a broker, obtaining IoT data from existing sources and sensors and making it available under the control of flexible policies that can

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adapt to emerging risks and regulations. Telecom providers have a reputation for working under privacy and security constraints and regulations, which would automatically give them credibility as a broker of existing sensor data or as a gatekeeper to control points.

Standardized format. The second requirement for the evolution of the Internet of Things market is offering information in a standard form. Telecom providers are accustomed to enforcing standards on information and message structures, and this is critical for free access to IoT data. It's inevitable that existing sensor networks will generate different information formats. The telecom providers can harmonize these to a standard format for consistent access by applications.

Security and authenticity. Requirement three for IoT is data security and authenticity. Every information source in IoT has to be "owned" and "located," meaning it has to be associated with a trusted source and put in a spatial context so its information is meaningful. For legacy sensors, the telecom providers can validate both properties by validating the controller or gateway through which the sensor is accessed. For new sensors attached with 3G, 4G or 5G wireless

technology, the provider can use HSS/IMS and cell triangulation to verify sensor information sources and locations.

Performance and availability. The fourth requirement is predictable performance and availability at scale. The history of information technology is full of examples of applications that are fine under normal conditions but fail disastrously under a heavy load. Telecom providers -- weaned on the examples of holiday calling and emergency access to communications -- are accustomed to engineering infrastructure for reliable behavior when reliability is most important.

Protecting IoT pathways. The fifth requirement for Internet of Things market development is accountability. The telecom industry has been regulated from its inception, both in terms of its connection services and its information resources. The foundation for protecting IoT pathways and data is present in the telecom industry and absent virtually everywhere else. It could take years to put regulations in place and test them in the courts, and it's possible that political impasse could stall regulations long enough to contaminate the industry through a series of risks and faults.

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Tolerating high cost/low rate of return. The final requirement is tolerance for high cost and low rates of return. Social networks have no shortage of funding these days, while no one wants to fund equipment or infrastructure-intensive startups. The reason is return on investment. Telcos, having operated as public utilities and regulated monopolies, are accustomed to low rates of return and accepting large capital costs before the revenue starts to flow. In addition, investors and the financial industry are accustomed to this sort of financial story. There's no shortage of companies eager to exploit the IoT opportunity, but few could actually expect the financial markets to back a decision to deploy it.

Some in the industry see an over-the-top future for the Internet of Things market, one with sensors and controllers on the Internet and applications developing as they have for the Web and online content. The requirements presented here make it unlikely this would come about. IoT will have to be put into place much as the public-switched telephone network was, through a utility-like evolution. While we have other industries that qualify as past or present "utilities," only telecom has been in the business of connection and communication all along. If telecom giants take insightful steps, they could

add hundreds of billions of dollars to their revenue streams and bootstrap IoT visions into realization much more quickly.

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