



 When it **Absolutely Must** Connect

Always-On Connectivity

Realizing the Dream of Wi-Fi Everywhere, All the Time

With the proliferation of tablets, cell phones, and all kinds of network-connected smart devices, having Wi-Fi infrastructure available has become essential in homes and businesses. Because wireless networks are greatly affected by radio interference, the installation, operation, and management of the network's connection and stability is increasingly important, especially in an enterprise environment.

As the critical nature of the Wi-Fi devices used in organizations grows, the need to always be connected becomes increasingly imperative. Today's consumer-oriented technologies are not suitable for the always-on network demands of many critical enterprise environments. Thus, Silex Technology has spent countless hours researching and developing technology geared toward providing zero downtime as part of their "Absolutely Must Connect" approach.

Ubiquitous Wi-Fi

Reliable connectivity – it’s the Holy Grail for Wi-Fi technology. Given how well established the wireless connectivity standard is, it is surprising – and often frustrating – to see reliability issues continue to crop up in this day and age.

As Wi-Fi is becoming ubiquitous, finding its way into all sorts of devices including those in consumer, industrial, and automotive applications, billions of Wi-Fi enabled devices are now relying on robust wireless connectivity.

The consequences of losing Wi-Fi connectivity can have varying degrees of severity. There are plenty off-the-shelf products on the market for those “good enough” scenarios where occasional, or even frequent, loss of connection is acceptable. However, in certain markets – such as medical, industrial, and manufacturing – unstable wireless connectivity can lead to a stop in operations, loss of productivity and economic efficiency, or even significant threats of safety and health. Those mission-critical scenarios where it absolutely must connect are where engineers and designers rely on Silex Technology.

If you lose a Wi-Fi connection while gaming, it may be annoying. If you lose a Wi-Fi connection in a hospital network, the consequences can be much more serious.

Who Is Silex Technology?

With more than 40 years of expertise in hardware and software connectivity know-how, custom design development experience, and manufacturing capabilities, Silex Technology is the trusted leader in reliable Wi-Fi connectivity. As a \$50+ million/year OEM supplier of leading-edge embedded network solutions, we provide reliable Wi-Fi technology and premier customer support for companies who need a completely connected, always-on experience for their customers.



Introducing the “Absolutely Must Connect” Approach

Wi-Fi is a well-defined network connectivity standard that is easy to use and fairly reliable for general use cases. Looking at all the Wi-Fi-enabled devices shipping today, approximately 50 percent are smartphones. Many of the remaining products include tablets, laptops, and other consumer electronics.

A much smaller portion of these Wi-Fi-enabled devices are used in the medical, industrial, and automotive markets by companies such as GE Healthcare, Motorola, and General Motors, who need their solutions to work every single time. They have requirements for greater robustness and reliability that go far beyond the expectations of Wi-Fi performance for consumer applications. These organizations have a more stringent set of Wi-Fi requirements, such as:

- 24/7, 365-days-a-year connection
- Immediate connection as soon as the equipment is turned on
- Roaming capabilities for wireless devices on the move
- Immunity to noisy environments and other interference

The Silex Technology Absolutely Must Connect approach was born to address these technology gaps. Rather than settling for “good enough,” Silex Technology has made a significant engineering investment over more than a decade to achieve increased Wi-Fi reliability. Ultimately, the improvements and new products we develop for those mission-critical use cases will have broad applications for everyone.

Who Can Benefit from “Absolutely Must Connect” Technology?



Medical/
Healthcare



Manufacturing



Education



Digital Signage and
Video Distribution

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Open vs. Proprietary: Staying Within the Wi-Fi Standard

Because of the gap between currently supported and desired applications, it is not enough to solely rely on a basic Wi-Fi implementation. Many companies choose to address this problem head-on by taking the most direct path – creating their own industrial proprietary wireless technologies. While these solutions may provide increased robustness and stability, they create a number of other problems including:

- Incompatibility with the existing Wi-Fi infrastructure
- Higher cost for customer implementation
- Less support or room for customization

The Silex Technology Absolutely Must Connect approach provides a higher level of connectivity and reliability while staying within the stated boundaries of the Wi-Fi standard. We implement features of the standard that may not be supported by most consumer devices, such as 802.11r for enhanced roaming, or add other features that won't impact interoperability.

Bottom Line: Billions of Wi-Fi enabled devices are relying on robust wireless connectivity, and instability problems can result in loss of time, money, and safety. Unlike other Wi-Fi providers, Silex seeks to achieve 0 percent downtime by controlling all aspects of the solution, from hardware and software design through interoperability validation and production testing.



The Silex Technology Approach for Constant Connectivity

At Silex Technology, our mission is to provide products and services that allow our customers to constantly benefit from the advantages a networked society offers. For example, when Delphi Display Systems, who specializes in custom digital signage solutions for retailers, needed a vendor to provide audio/visual networking components for its new display system, they looked to Silex Technologies. Given the ruggedized requirements of Delphi Display products, releasing a robust solution with an extremely low failure rate was imperative to their product's success. Our technology immediately showed much greater reliability compared to the prior vendor's solution.

Delphi selected the Silex X-1 Multicast Video Distribution System, which distributes HD video and stereo audio streams across wired and wireless Ethernet to ensure constant connectivity. After six years and more than 50,000 operational hours of uninterrupted operation across multiple deployments in retail stores, Silex Technology's Absolutely Must Connect solution has proven to be ideal for Delphi's always-on AV networking needs.



Using Silex's always-on technology to wirelessly distribute synchronized HD video to multiple retail monitors, Delphi has achieved six years of uninterrupted operations in the field.

To ensure this kind of wireless connectivity and stability across a wide variety of industries, we invest heavily in research and development. More than 55 percent of all Silex Technology employees are dedicated to R&D. In addition, we work closely with world leaders in wireless technologies, such as Qualcomm Atheros (QCA). Silex Technology is one of 15 Qualcomm Authorized Design Centers (ADCs) in the world and we have developed wireless connectivity solutions based on Qualcomm Atheros Wi-Fi radios for over a decade.

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To turn the Silex Technology Absolutely Must Connect vision into reality, we focus on the following key points throughout our development process:

- **Hardware Design:** We validate that our products comply with IEEE specifications and are designed to provide maximum performance and stability.
- **Software Design:** We add new features and fix various bugs found in the QCA reference driver.
- **Interoperability Testing:** We ensure our products work with the most common enterprise access points and test them with a variety of encryption and authentication methods.
- **Production Test:** We individually test each module to make sure we deliver the highest quality product with the most consistent performance.
- **Next-Generation Technology:** We push the boundaries with powerful future capabilities.

Conclusion

Overall quality and efficient performance can be difficult to guarantee unless a wireless embedded module manufacturer controls all of the key areas of the development process. At Silex Technology, we have proven, in-depth competencies from design through production, which enables us to successfully lower the downtime threshold for wireless LAN products and systems.

Next Step: For more information on the hardware, software, and support that make up the Silex Technology Absolutely Must Connect approach, visit: silexamerica.com/campaign/when-it-absolutely-must-connect/