EDX WIRELESS MESH SOLUTION
PRODUCT SOLUTION DOCUMENT

INTRODUCTION

The EDX Wireless MESH Solution is designed to deliver scalable, flexible, and resilient wireless communication networks that meet the complex needs of diverse industries. From utilities deploying Advanced Metering Infrastructure (AMI) to smart cities, industrial IoT, and last-mile broadband, the EDX MESH Solution supports reliable connectivity across large, complex environments.

This document outlines the key use cases, features, advantages, and benefits of the EDX Wireless MESH Solution, providing a comprehensive overview of how it can address specific industry challenges.

SOLUTION OVERVIEW

Wireless mesh networks use interconnected nodes to relay signals, creating a robust and self-healing network. EDX's Mesh Network Module leverages advanced algorithms to automate network design, optimize node placement, and ensure reliable performance in dynamic environments. The solution is designed to support small-scale networks with fewer than 1,000 nodes, as well as large-scale deployments covering millions of devices.

KEY FEATURES

● Self-Healing Network

The MESH network automatically reroutes data to avoid congestion or failed connections, ensuring continuous uptime and optimized performance.

● Automatic Site Selection

This feature evaluates mesh connectivity, gateway capacity, and site cost to optimize network design and reduce project costs.

● Adaptive Modulation Support

The solution adjusts data rates based on modulation, ensuring devices such as streetlights and security cameras receive the appropriate bandwidth.

● Multi-Protocol Support

The MESH network is compatible with a wide range of wireless protocols, such as Wi-Fi, LTE, NB-IoT, and others, making it adaptable to various devices and systems.

USE CASES

Utilities

EDX MESH is ideal for utilities deploying AMI networks for electricity, water, and gas metering. The solution handles diverse data-rate requirements, supports meters in difficult propagation environments, and provides resilient communication paths to reduce outages and optimize distribution.

Last-Mile Broadband

The solution supports reliable broadband services to homes and businesses in hard-to-reach areas, providing cost-effective alternatives for last-mile connectivity.

Smart Cities & IoT

MESH networks enable smart cities to connect devices such as streetlights, sensors, and security cameras. With adaptive modulation, the MESH solution meets the varied data-rate needs of different devices in real-time.

Industrial IoT

Designed to thrive in harsh environments, the EDX MESH solution ensures stable communication for industries like mining, oil & gas, and manufacturing, where reliability and redundancy are critical.

ADVANTAGES

Scalable to Millions of Devices

The EDX Wireless MESH Solution is designed to support large-scale deployments, capable of managing millions of meters, devices, and nodes across expansive areas, making it ideal for utilities and smart city applications.

Cost-Efficient Deployment

Optimized node and gateway placement reduce the need for excessive infrastructure, lowering both initial setup and ongoing maintenance costs.

High-Throughput Connectivity

Adaptive modulation adjusts data rates to meet the needs of each device, ensuring optimized performance for both low and high-bandwidth applications.

Reliable Performance

Built with a self-healing network architecture, our solution ensures uninterrupted service by automatically rerouting data around failed nodes or network congestion.

Flexible Network Expansion

Easily add new devices or nodes as your network grows, without disrupting current operations or service.

BUSINESS BENEFITS

Lower Deployment Costs

The solution minimizes infrastructure requirements, reducing both setup and long-term maintenance costs.

Improved Performance and Reliability

Self-healing and adaptive modulation capabilities ensure minimal downtime and optimized performance, especially in high-demand environments.

Future-Proof Design

The solution is designed to adapt to evolving technologies, enabling easy integration with new devices and protocols as they emerge.

TECHNICAL HIGHLIGHTS

Mesh Topology

The network leverages a mesh topology to ensure that each node can act as both a transmitter and receiver, ensuring path diversity and redundancy.

Modulation Layers

Adaptive modulation adjusts the data rate for each device, ensuring higher throughput for devices with greater data demands.

Topology and Redundancy Reporting

EDX's MESH module includes topology reporting functions that display alternate paths and identify potential points of failure, enabling users to design fully redundant networks.

CONCLUSION

The EDX Wireless MESH Solution provides a **flexible, cost-effective**, and **future-ready** solution for a variety of industries. With advanced features that support both small and large-scale deployments, the MESH Solution ensures robust and reliable communication, whether for utilities, smart cities, industrial IoT, or last-mile broadband.

For more information on how the EDX Wireless MESH Solution can meet your network needs, contact us at:

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