

AEP

LITE PAPER

UNDERSTANDING APPLICATION ENABLEMENT PLATFORM (AEP): A BEGINNER'S GUIDE

This lite paper introduces the basics of AEPs, including their architecture, key features, and benefits. Let's understand them one by one.



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Introduction

The Internet of Things (IoT) transforms industries and how we interact with technology. As connected devices grow, businesses seek efficient ways to manage their IoT deployments. It is where Application Enablement Platforms (AEPs) come in. AEPs provide a comprehensive suite of tools and services that enable businesses to develop, deploy and manage IoT applications quickly.

What is an IoT Application Enablement Platform?

An IoT Application Enablement Platform (AEP) is a middleware platform that connects IoT devices, applications, and services. It provides tools and services that enable businesses to develop, deploy and manage IoT applications. The platform abstracts the complexity of IoT deployments and provides an easy-to-use interface for developers, allowing them to focus on building applications instead of addressing the infrastructure.



Architecture of an AEP

The architecture of an AEP typically consists of the following layers:

Edge Layer: The edge layer consists of physical devices and sensors that collect data from the industrial environment. This layer may include gateways and edge devices that preprocess data and perform local analytics.

Connectivity Layer: The connectivity layer provides the mechanisms for transmitting data from the edge layer to the cloud. This layer may include protocols such as MQTT, HTTP, and CoAP, as well as transport mechanisms such as 4G/LTE, Wi-Fi, and Ethernet.

Cloud Layer: The cloud layer provides the backend infrastructure for processing, storing, and analyzing data from the edge layer. This layer may include cloud services such as storage, databases, analytics, and machine learning.

Application Layer: The application layer provides the tools and services for developing custom IIoT applications. This layer may include APIs, SDKs, development tools for creating custom applications, and pre-built application templates for common use cases.

Security Layer: The security layer provides mechanisms for securing the IIoT system from threats and vulnerabilities. This layer may include encryption, authentication, access control, intrusion detection, and prevention mechanisms.

Management Layer: The management layer provides tools and services for managing the IIoT system, including device management, software updates, and system monitoring. This layer may include dashboards, analytics, and reporting tools for monitoring and managing the system.

The architectural complexity of an enterprise IoT and A-IoT platform goes through multiple stages. Six lenses under IT Management for an ideal industry fit include an enterprise ecosystem, a built-in cloud-agnostic infrastructure, a system secured by design, business continuity through DevOps, performance scaling with edge compatibility, and multi-tenancy via IAM or Role-based Access Management (RBAC). Further, these layers constitute field devices, application lifecycle management, device/asset monitoring (including OEM's custom SDK), application experience layer with tenant/asset onboarding functions, and device cloud connectivity (AWS, Azure, & Google).

Overall, the architecture of an IIoT AEP should be designed for scalability, reliability, and security and should provide a comprehensive platform for developing, deploying, and managing IIoT applications in an industrial environment.

Key Features of an AEP

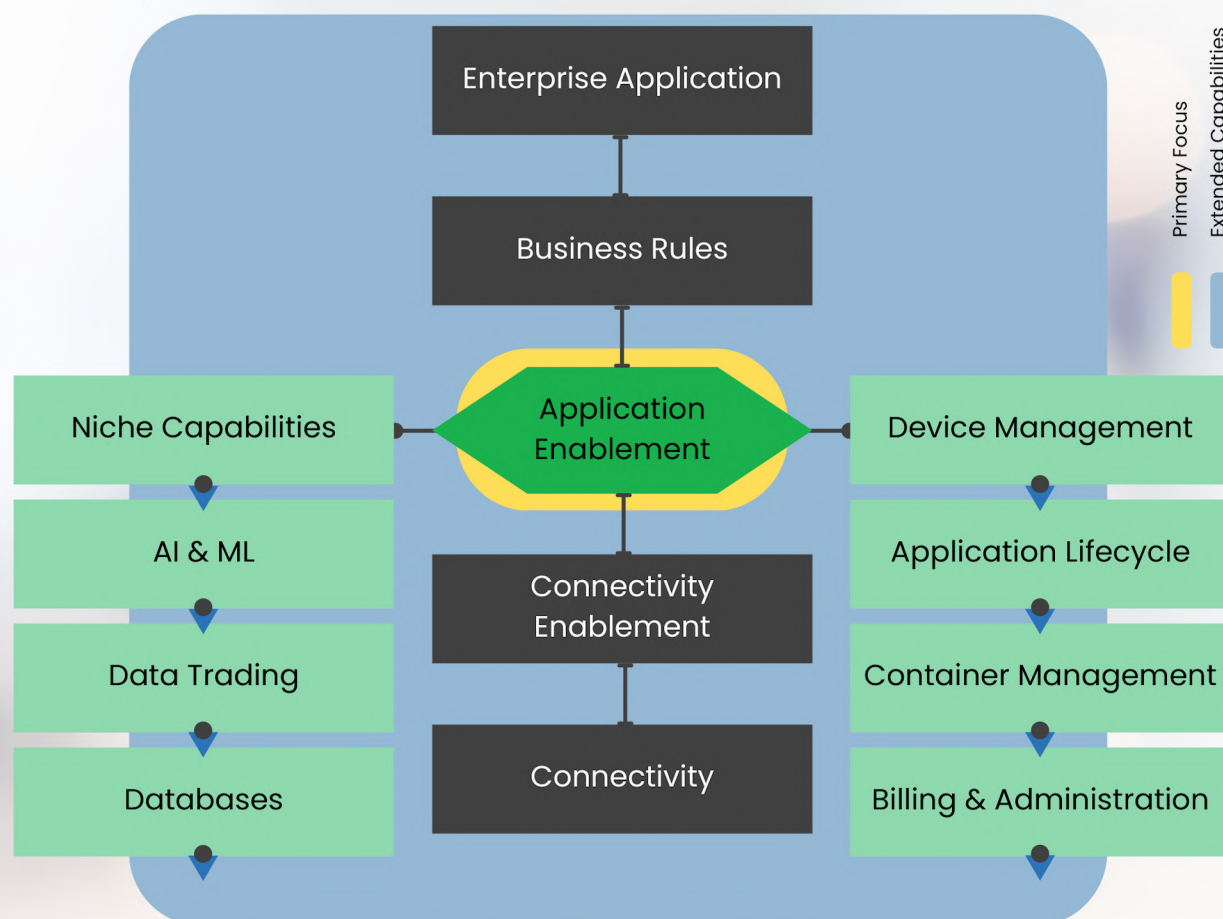
Industrial IoT Application Enablement Platform (AEP) offers various key features that enable businesses to develop and deploy IoT solutions. These features include device management, data analytics, and integration with third-party services. However, more than having an AEP alone is needed to overcome IoT development challenges.

Every Industrial OEM requires an IoT Solutions partner who can help them scale their IoT project from MVP to a fully functional solution and customize it to their unique business needs. A reliable development partner can also help businesses overcome common hurdles in IoT development, such as security, compatibility, and reliability issues, and ensure that the IoT solution is built for success.

An ideal AEP must be:

- A build-to-deployment and cloud-agnostic tool that is proven, reliable, foundationally secured, and highly scalable.
- A platform that offers an expanding array of Web2 Application Development services to accelerate the development of Enterprise-Grade Applications on your IoT and A-IoT digital platform journey, powered by advanced Middleware technology.
- An enterprise-grade multi-tenant and multi-asset performance application with life cycle management, monitoring, operations, insights, and model-building features.
- An intuitive Low/Pro Code tool and workflow for advanced data handling, expanding multi-asset and multi-tenant application functionalities.
- Built using industry-best secure development and deployment processes that fulfill enterprise requirements for security, scalability, disaster recovery, and multiple deployment flexibilities.

Taxonomy of the IoT Platform



Application Enablement: Central orchestration often includes other platform functions.

Device Management: Helps you provision, monitor, and maintain the growing endpoints.

Connectivity Enablement: Supports the provision of connectivity.

Connectivity: Provides connectivity services.

Business Rules: ITTT (If this, then that)

Enterprise Application Integration (EAI): Allows various components of a network to share information, exchange data, and coordinate resources.

Niche: Wide range of specialist niche platforms and/or services.



The key features of an AEP include the following:

- **Device management:** An AEP should provide a user-friendly interface to manage IoT devices, including provisioning, configuration, and monitoring. It should allow users to easily add, remove, and update devices and track their status and performance.
- **Data Ingestion:** It should be able to collect data from various IoT devices and sensors, process it, and store it in a secure and scalable database.
- **Integration:** It should support integration with third-party systems and services, such as cloud platforms, data lakes, and APIs.
- **Scalability:** It should be able to handle large volumes of IoT data and support a growing number of IoT devices and users.
- **Security:** It should provide robust security features, such as access control, authentication, encryption, and threat detection.
- **Customization:** It should provide a flexible and extensible platform that can be customized to meet the unique business needs of the user.
- **Application Development:** It should enable users to develop and deploy IoT applications quickly and easily using pre-built templates, libraries, and tools.

Benefits of Flex83 as Your AEP

The benefits of using an AEP include the following:

- **No Vendor Lock-In:** With IoT83's AEP, Flex83, you're not tied to a specific vendor. Here, you can choose the best technology and hardware for your IoT solutions. It allows OEMs to leverage the latest innovations and avoid getting stuck with outdated technologies.
- **No Technology Lock-In:** Flex83 is built to be flexible and open, so you can easily integrate with any third-party system or service. It lets our clients stay worry-free about platform architecture. Since we use many OpenSource components with our layer on top, it helps reduce technical debt to a greater extent, allowing our team to constantly work on upgrading components as per the latest market release.
- **Lowest Change Management Cost:** It is designed to minimize the cost and complexity of change management, so you can quickly and easily adapt to new market trends, customer needs, and regulatory requirements.
- **Licensed Code in Escrow:** We provide our clients with a licensed code in escrow, leaving no dependency on IoT83 for your OT/IT Applications. It ensures that you can maintain complete control over your IoT solutions and make changes as needed without being dependent on IoT83.
- **Lowest TTM (Time to Market):** Flex83 lets you quickly develop and deploy IoT solutions, which reduces your time to market and helps you stay ahead of the competition.
- **Lowest TCO (Cost of Ownership):** Our AEP is designed to minimize your total cost of ownership, including upfront and ongoing expenses. With our flexible pricing models and comprehensive support, you can save money and maximize your ROI while delivering high-quality IoT solutions to your customers.
- **Full IP Ownership:** You own all the intellectual property (IP) you create using our AEP, which means you can fully leverage your IoT solutions to generate revenue and competitive advantage.
- **Total Deployment Flexibility:** Our AEP can be deployed on-premises, in the cloud, or a hybrid environment, which gives you the flexibility to choose the deployment option that best suits your needs. It ensures you can optimize your infrastructure and resources while delivering high-quality IoT solutions to your customers.

Conclusion

IoT Application Enablement Platforms (AEPs) are critical components of the IoT ecosystem. It significantly accelerates the Enterprise IoT and A-IoT Digital Platform Journey and lets industrial OEMs invest only for value and avoid infrastructural costs.

By abstracting the complexity of IoT deployments, AEPs reduce development time, speed up time to market, and ensure that IoT deployments are secure. As the IoT ecosystem evolves, AEPs will be increasingly important in driving digital transformation initiatives for global industries.