Arm Pelion
Device Management

Turnkey, future-proof, and secure IoT device management from the device experts
For an IoT solution to deliver transformative business value, businesses need dependable device management, ensuring IoT devices remain up-to-date, secure, & accessible.

IoT means different things to different people. Arm has the unique vantage point of collaborating with our ecosystem partners on everything from the early-stage IoT-optimized chipset designs, through to full-featured end-to-end IoT solutions. Whether it’s IoT to enable the smart, connected, and energy-efficient home or to deliver the streams of trusted data that feed an enterprise’s AI-driven analytics infrastructure, one thing binds the two extremes: the absolute need for a full-featured Device Management service.

The Pelion Device Management Service, part of Arm’s full-service Pelion IoT Platform, abstracts the complexity of the increasingly diverse and sophisticated IoT device landscape, the numerous connectivity options, and the hosting options for both IoT data and the device management portal. By streamlining the foundations of an IoT solution, Arm makes it easier and quicker for organizations to transition from concept to benefits.

**Features:**

- **Deployment flexibility**
  Software-as-a-software hosted in the public Cloud, as a private Cloud instance, or as a private On-Premises implementation. Additionally, legacy device integration and edge application enablement are also supported.

- **Chip-to-Cloud independence**
  Interoperable with any device - Arm-based or third-party, with any connectivity solution, and with any data management service/customer data platform.

- **Development agility**
  Supports both a feature-rich quick-start turnkey offering and a fully customizable development platform.

Device management, in an age of IoT-centric business, needs to be about more than merely the actions required to onboard a device and enable it to send data; these simple functions are just the beginning. Throughout a device’s five, ten, or even 20-year life cycle, the device management service will be responsible for numerous maintenance tasks. Both reactive and proactive in nature, device management needs to respond to known issues and vulnerabilities, and perform real-time detection of abnormal behavior. The latter might be indicative of a software bug that will dramatically reduce battery life, or it could be the result of a new security breach; either way, device management’s role continues throughout a device’s life, up to and including managed off-boarding.
Pelion Device Management Service

The Pelion Device Management Service is a full-featured IoT device management offering, built to abstract the complexities of device on-boarding, continuous chip-to-cloud security, and ongoing life cycle maintenance.

For greenfield deployments, the solution comprises the Pelion Device Management Client, deployable to any IoT device type, and a server function - Pelion Device Management Cloud - that can be either publicly or privately Cloud-hosted. However, it is also locally deployable - via Device Management On-Premises - where additional compliance, privacy, or technical control is required. Together, these components form the IoT device control plane and establish a framework for the secure transmission of IoT data to the data management platform.

The Pelion Device Management Edge product delivers protocol translation and management for non-IP devices and complements and extends existing legacy IoT and OT implementations. Additionally, Edge provides an open, standards-based, and interoperable platform to package, deploy, and manage IoT applications for local execution. The trend to decentralize application enablement addresses numerous issues encountered with traditional models. In essence, it improves latency, reduces bandwidth requirements, enables higher levels of autonomy for sites with limited or unreliable Cloud connectivity, and establishes the infrastructure for Machine Learning.

<table>
<thead>
<tr>
<th>Device Management Cloud</th>
<th>Device Management On-Premises</th>
<th>Device Management Edge</th>
</tr>
</thead>
<tbody>
<tr>
<td>A SaaS deployable on any public cloud platform such as AWS, Azure, and Google. The benefits include zero hardware costs, fast implementation, and easy scalability.</td>
<td>A dedicated implementation on the customer’s bare metal or data center infrastructure. The benefits include enhanced regulatory compliance, privacy, and technical oversight.</td>
<td>A software service implemented in on-site gateways. The benefits include the management of legacy and non-IP devices and the management of IoT applications at the solution edge.</td>
</tr>
</tbody>
</table>
Leveraging Arm’s expertise in embedded silicon, Pelion Device Management establishes an end-to-end chain-of-trust: validating device identity, administering cryptographic keys and certificates, and securing connectivity between the device and the IoT data ingestion platform.

Throughout a device’s service life, Pelion Device Management maintains the IoT data stream’s integrity through a series of checks and balances:

- Trusted and signed firmware updates feature anti-rollback protection to guard against re-exposure to previously patched vulnerabilities.

- Delta Updates minimize the size of application fixes and security patches, making the process more streamlined, less prone to transmission failure, and reducing offline memory storage requirements.

- Device Sentry agent collects a range of device health metrics that could be indicative of an operational problem or a security breach.

Collectively, these capabilities ensure that the Pelion Device Management service delivers a mature, full-featured solution to the challenges of comprehensive life cycle maintenance.
Arm resides at the center of a dynamic, collaborative ecosystem of 1,000+ partners guiding the evolution of IoT. Leveraging this, and Arm's comprehensive professional services, empowers organizations to seamlessly build the IoT solution that matches their application requirements and to realize the promise of IoT.

Crucial to making Chip-to-Cloud IoT security a reality is building a foundation that models threats, usability, and costs to inform the appropriate device architecture. The Platform Security Architecture (PSA) - and Arm initiative that’s generating widespread ecosystem support - serves as a framework for securing connected devices. It provides a step-by-step guide to building in the right level of device security, reducing risk around data reliability, and allowing businesses to innovate on new ideas to reap the benefits of digital transformation.
**Pelion IoT Platform**

**arm PELION**

**Pelion IoT Platform** is a flexible, secure, and efficient foundation spanning device, connectivity, and data management. It accelerates the time-to-value of your IoT deployments by seamlessly connecting trusted IoT devices on global networks, monitor and manage them, and extract the real-time data from them that will drive provide transformational insights and competitive advantage.

**Pelion Connectivity Management** leverages the world’s best networks to provide secure, reliable cellular connectivity. It features a class-leading management platform that helps organizations take complete control of their IoT connections. A scalable solution that is fast to deploy, it offers cost-effective data rates, predictable operating costs, automated connection monitoring, and 24/7 support enabling enterprises, manufacturers, and pioneers to deliver high-performance IoT projects.

**Pelion Data Management** makes it easy to access, integrate, and action insights derived from trusted IoT data. By leveraging IoT and enterprise-level data, organizations can harness new opportunities, improve operational efficiency, and make critical decisions with confidence. Arm empowers cross-functional teams with insights that drive outstanding user experiences, cutting through the complexity of enterprise data management.

For additional information, please visit us at [www.arm.com/pelion](http://www.arm.com/pelion)