



GROUNDBREAKING SOLUTIONS FOR THE RAPIDLY EVOLVING WORLD OF IOT

As powerful computing grows stronger, smaller and cheaper, so emerges IoT (the Internet of Things) – a world populated by an abundance of intelligent, connected devices that open the gates to a countless previously inconceivable applications and services that stand to change the very way we live, work and play.

Keeping the wearables, home automation gadgets, connected M2M (Machine-to-Machine) and telematics devices that make up the brave new world of IoT constantly fresh, properly managed and continuously relevant to consumers can be quite the challenge. And it is this perhaps greatest of challenges that HARMAN IoT update solutions can help you overcome.

A uniquely comprehensive IoT solution offering

Our end-to-end range of HARMAN IoT update solutions provide you with everything you need to:

- Remotely update and enhance the functionality and performance of your smart wearable devices
- Keep all your smart home automation facilities running and interoperating smoothly
- Manage and analyze connected M2M devices and settings from afar
- Eliminate recalls via secure, remote OTA (Over-the-Air) updates of aftermarket telematics devices

Wearable Device Software Management

HARMAN Wearable Device Software Management lets you efficiently keep all connected wearables increasingly functional and relevant in a highly competitive landscape. Full flexibility is ensured, with wearable device software managed and updated over the air, either directly on target devices or via a companion smartphone app.

Powering this highly scalable solution is our peerless Smart Delta technology, which delivers the latest firmware, OS and core application updates over the air - via the smallest possible, most efficient payloads. Rather than replace files or software images in their entirety, this Android-, Tizen-, BrewMP- and Linux-compatible technology determines even the slightest changes in code, then applies them "in place", effectively creating target software images with full bit-for-bit integrity – in the fastest, most cost- and storage-efficient way.

Updates may autonomously be initiated via periodic device self-checks, or executed by administrators in the context of targeted update campaigns. An intuitive browser interface offers even greater control by allowing proactive monitoring, analysis and management of device configuration and settings.

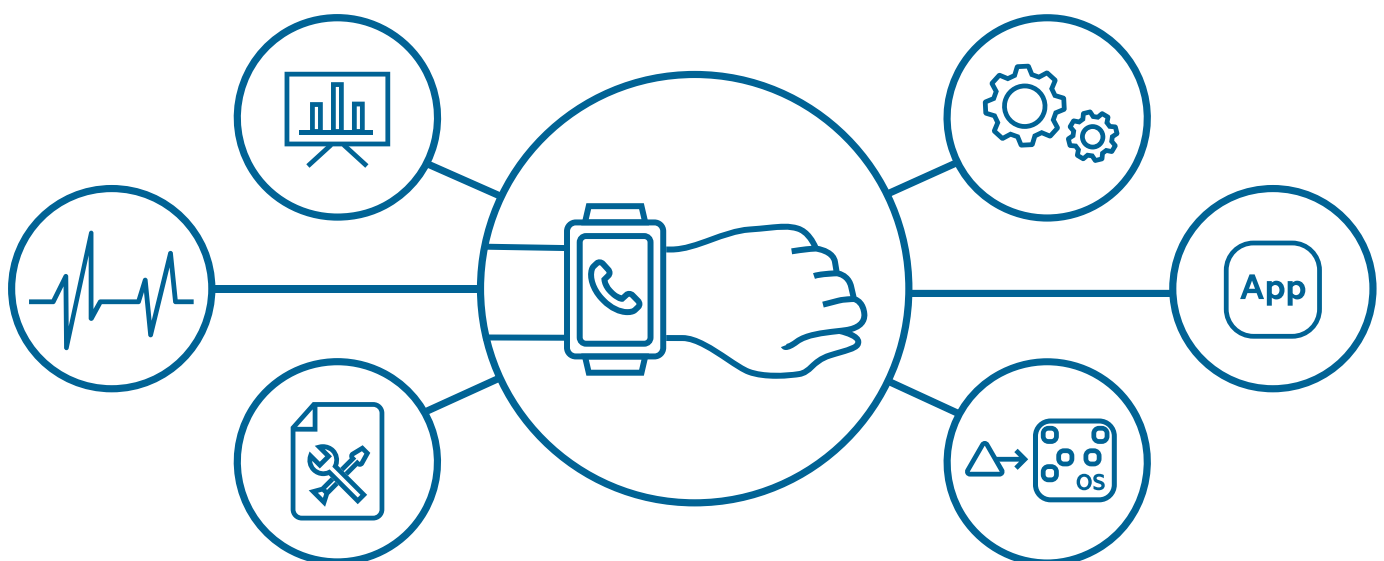
Connected Home Software Management

Our IoT solutions offer similar power and flexibility in managing and updating automation devices in the rapidly evolving smart home. HARMAN Connected Home Software Management provides a flexible Web interface enabling connected devices to be monitored, analyzed, configured and updated over the air, via smartphones, home network routers and gateways, and even directly from the Cloud.

HARMAN Smart Delta technology works its magic here too, keeping updates as fast and efficient as possible. Full device interoperability is ensured via support for Android, Tizen, Linux and BrewMP OSs, and for ZigBee, Bluetooth-LE, Wi-Fi, cellular and PLC networks. Interoperability is further enabled through our strict adherence, and considerable contribution of technology, to such to-the-home and in-home industry connectivity and management standards as OMA-DM and AllJoyn.

Telematics Device Management

HARMAN Telematics Device Management provides everything aftermarket telematics device vendors, service providers and fleet managers need to remotely update, configure and analyze deployed



telematics units. The solution effectively relieves you of the need to recall vehicles and endure unnecessary downtime. Having served in more than two billion devices worldwide to date, our 100% field-proven technology any device – regardless of OS, chipset, network connection type and available hardware resources. Updates packaged in the smallest possible payloads can be delivered either via smartphone or directly from the Cloud. Update campaign management, analytics and reporting backend facilities are made fully accessible via a Cloud-based administrator portal, and can be scaled as per any requirement, with SaaS business model support ensuring fast time-to-market and reduced upfront costs.

M2M Device Management

Our MDM Device Management solution enables M2M service providers, and device and module vendors to easily update, configure and analyze remote device deployments and settings. This can be done either with or without the need for user intervention, while helping to avoid costly dispatch of technicians for on-site maintenance. The solution even allows you to offer your customers OTA device management services of their own.

A versatile Web-based update and campaign management interface, and OS-, chipset-, device resource- and network-agnostic Smart Delta technology ensure fast, efficient and failsafe over-the-air delivery of updates to any M2M module or connected device. HARMAN MDM Device Management additionally enables predictive device maintenance on the basis of health monitoring and analytics.

Backed by a strong services foundation

All HARMAN IoT solutions come with a rich array of support services designed to address both current and emerging IoT device manufacturer needs. These include turnkey delivery via highly scalable Cloud-based SaaS or hosted service offerings, extensive integration, custom UI and business logic configuration options, customer-tailored consulting and expert professional services, among others.



Target markets

HARMAN technology and solutions are designed to optimally address the specific needs of the following key markets:



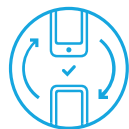
Automotive

Our advanced automotive market-centric capabilities optimize in-vehicle hardware and software, ensuring 100% reliability, and enabling secure, end-to-end remote and OTA software management for any vehicular platform throughout its operational life. HARMAN automotive solutions enable manufacturers to capitalize on the full business potential of connected cars by enhancing driver experience with rapid deployment of value-added in-car services, and minimizing costs through improved efficiency and a reduction in recalls.



IoT (Internet of Things)

Backed by our market-leading Smart Delta update technology, HARMAN IoT software and device management services help deliver uniquely reliable, flexible and scalable solutions. They enable manufacturers of even the most resource-constrained IoT devices to easily monitor, control and continuously add value to wearables, consumer and smart home electronics, automated meters and more – ultimately enhancing user experience and increasing ROI.



Mobile

End-to-end software and device management services backed by powerful update technology. HARMAN mobile solutions allow manufacturers and service providers to continuously increase the usefulness and value of connected devices throughout their entire lifecycle, while ensuring OMA DM protocol-compliant certification as per carrier interoperability requirements. They optimize device performance, deliver unique insights, facilitate rollout of innovative services and contribute to increased ARPU.

Partner with an industry expert

HARMAN Connected Services, a leader in software design and development, helps global brands dramatically reduce time-to-market while improving quality and productivity. Our end-to-end software engineering, IoT and data analytics services enable the world's top automotive, mobile and communications and software-enabled businesses drive innovation-led growth. Via our over-the-air (OTA) software update, virtualization and device management solutions we keep billions of mobile, automotive and IoT devices of all sizes and complexity continuously and reliably relevant and secure. The mobile devices and intelligent systems that we power are connected, integrated and protected across all platforms and reach every corner of today's digital world. HARMAN Connected Services is a division of HARMAN (NYSE:HAR), the leading global infotainment, audio and software services company.

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