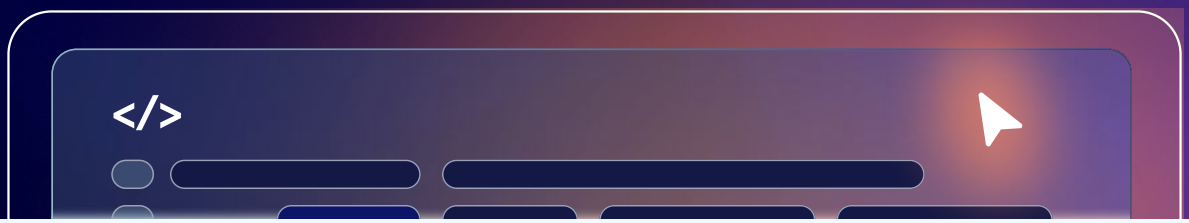
Memfault

The State of IoT Software Development

A Benchmark for Embedded Teams and Leaders



Executive Summary

Complexities abound

Internet of Things (IoT) devices contain vast amounts of software code, such that software now accounts for the majority of project development costs. Combining cost constraints with time-to-market pressures is a potential recipe for poor software quality, which can reduce user productivity, risk cybersecurity vulnerabilities, and yield customer dissatisfaction.

Opportunities to improve

Fortunately, companies can accelerate project timelines and improve in-field maintenance by using tools for remote collection of health and performance data. Such tools can also help engineers improve code quality, reduce the time to find and fix bugs, and save many hours of developer time per year.

Memfault partnered with VDC Research, a leading IoT research firm, to develop a first-of-its-kind benchmark report that sets a new standard for embedded teams around the world.

Use this report to:

- See how you stack up against hundreds of IoT projects across 10 common verticals.
- Identify the tools the top embedded teams use to work faster and reduce costs.
- Develop a playbook to launch your product on time and within budget.
- Get executive buy-in on the resources you need to make your IoT project a success.

Download the report memfault.com/iot-software-development-report

Key Findings

Software drives complexity and cost.

- Software accounts for nearly 60% of project development costs.
- The average project contained 548,000 lines of code (LoC), with many exceeding 10 million LoC.
- More than 60 of the projects cost $10 million+ to develop.

Developers reveal reliability and safety concerns.

- One-third (33%) of respondents do not believe their organization adequately tests the cybersecurity of its products. That portion rose to 50% among those whose projects were behind schedule.
- 50% of organizations take more than a week to find the cause of reported software defects, while 20% take several months. More than 40% require more than a week to fix those defects once found.
- Only 8% of organizations release fixes within a day of finding software defects, yet 83% of respondents said their development team has adequate tools to efficiently fix defects when they are found in the field.

Choosing the right tools saves teams time and money.

- Organizations using remote device health and performance monitoring solutions were 3x as likely to finish ahead of schedule vs those collecting no data.
- Organizations using third-party tools to monitor device performance and health required one-third fewer person hours to remediate software bugs.
- Engineers using third-party tools to collect device performance and health data saved 57% in overall project development costs versus those using in-house solutions.

VDC Research

About the Research

For this report, VDC Research conducted a global survey of more than 750 people directly involved in developing IoT products and/or embedded electronic systems, with questions about technical trends impacting software development.

Respondents came from a variety of job roles and worked on products for a range of vertical markets. Their employers included OEMs, ODMs, independent product design and software development firms, and systems integrators.

About Memfault

Memfault gives embedded engineering teams an off-the-shelf observability solution with built-in over-the-air update management. It is designed for constrained devices and provides device performance monitoring, debugging, and OTA capabilities.

To see how it works, visit memfault.com/demo

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