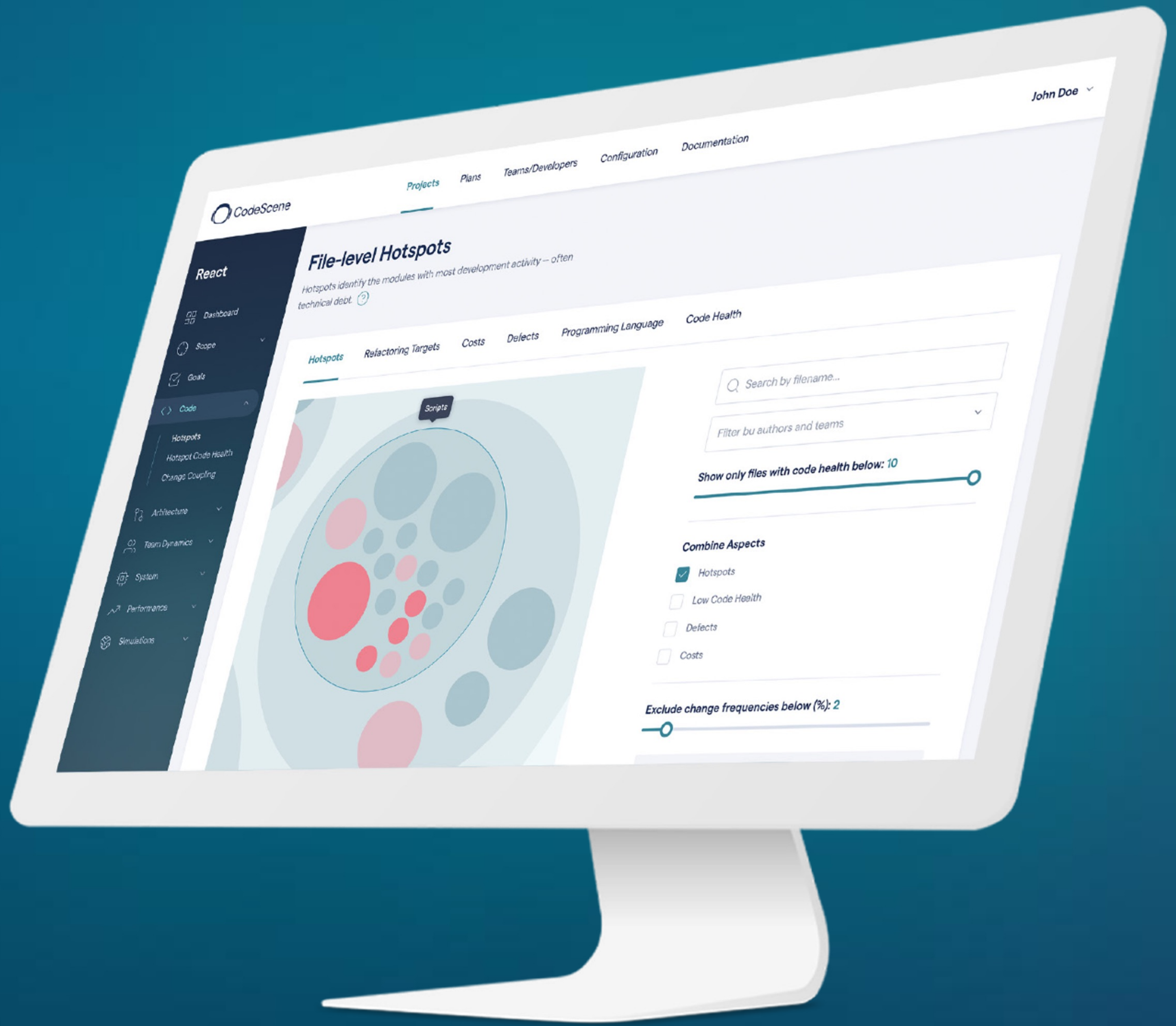
CodeScene

Scale AI coding safely without sacrificing quality

We give AI agents deterministic code-quality guidance, so they improve velocity without creating technical debt.



File-level Hotspots

Hotspots identify the modules with most development activity – often technical debt.

Show only files with code health below: 10

Combine Aspects

☑ Hotspots

☐ Low Code Health

☐ Defects

☐ Costs

Exclude change frequencies below (%): 2

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AI writes tomorrow’s legacy code, faster than teams can review it

40% more bugs

Uplevel

Velocity gains cancelled out due to **massive increase in complexity**

CARNEGIE MELLON UNIVERSITY PITTSBURGH PENNSYLVANIA 1900

Technical debt accelerator (75% tech leaders will face high or moderate technical debt by 2026)

FORRESTER®

AI amplifies defects in unhealthy code **(+30% defect risk)**

CodeScene

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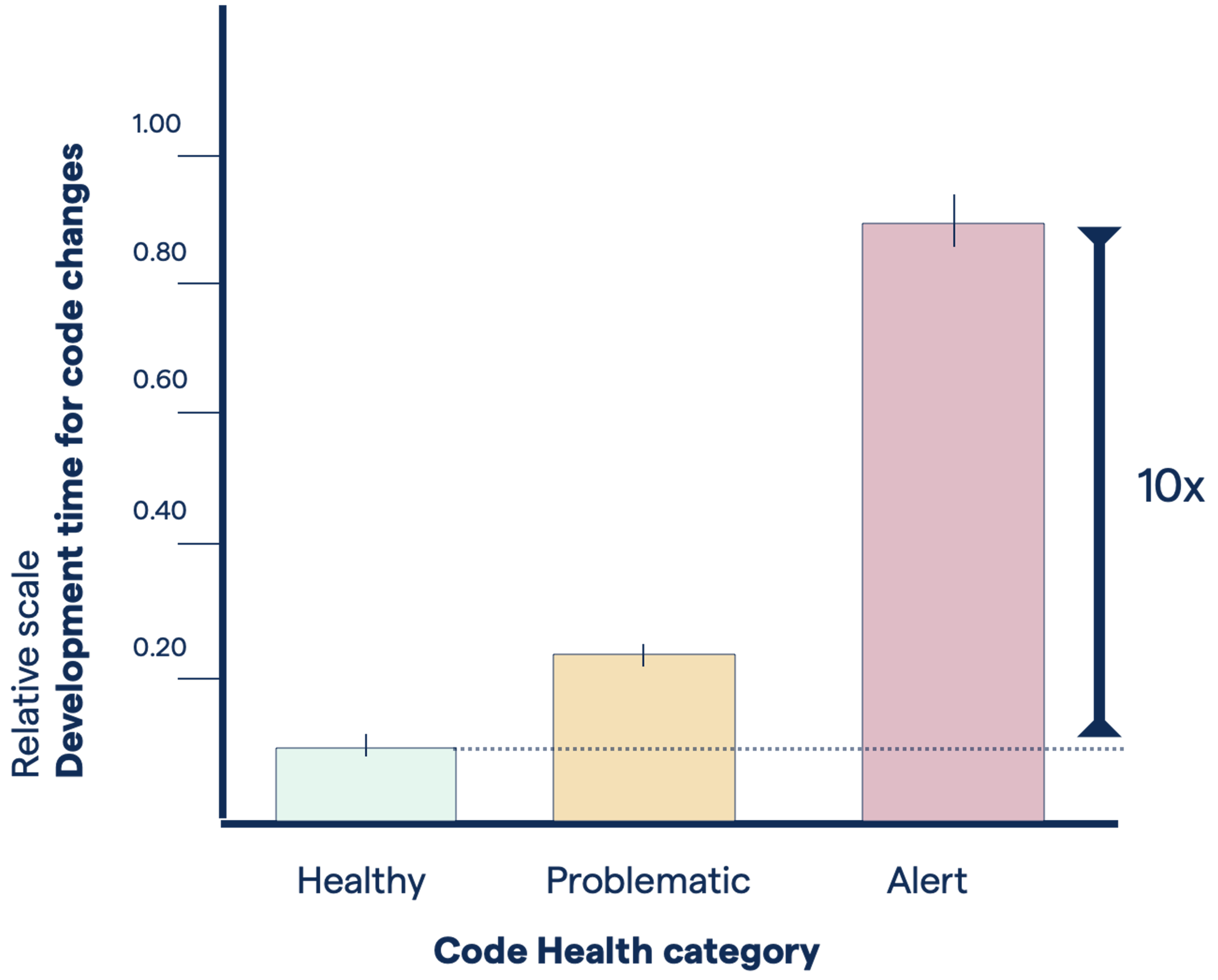
Code Health is the foundation – showing what ”good” and ”bad” code is

Task completions times in unhealthy code are up to 10x longer compared to green, healthy code



CodeHealth™ the leading quality metric

- Research-based, award-winning metric
- Low code quality correlates to higher defect rates, slower delivery and higher costs.
- Unhealthy code makes AI behave badly, and never before is more code produced than now
- Benchmark, objective and deterministic measure
- Protective buffer for AI-assisted development

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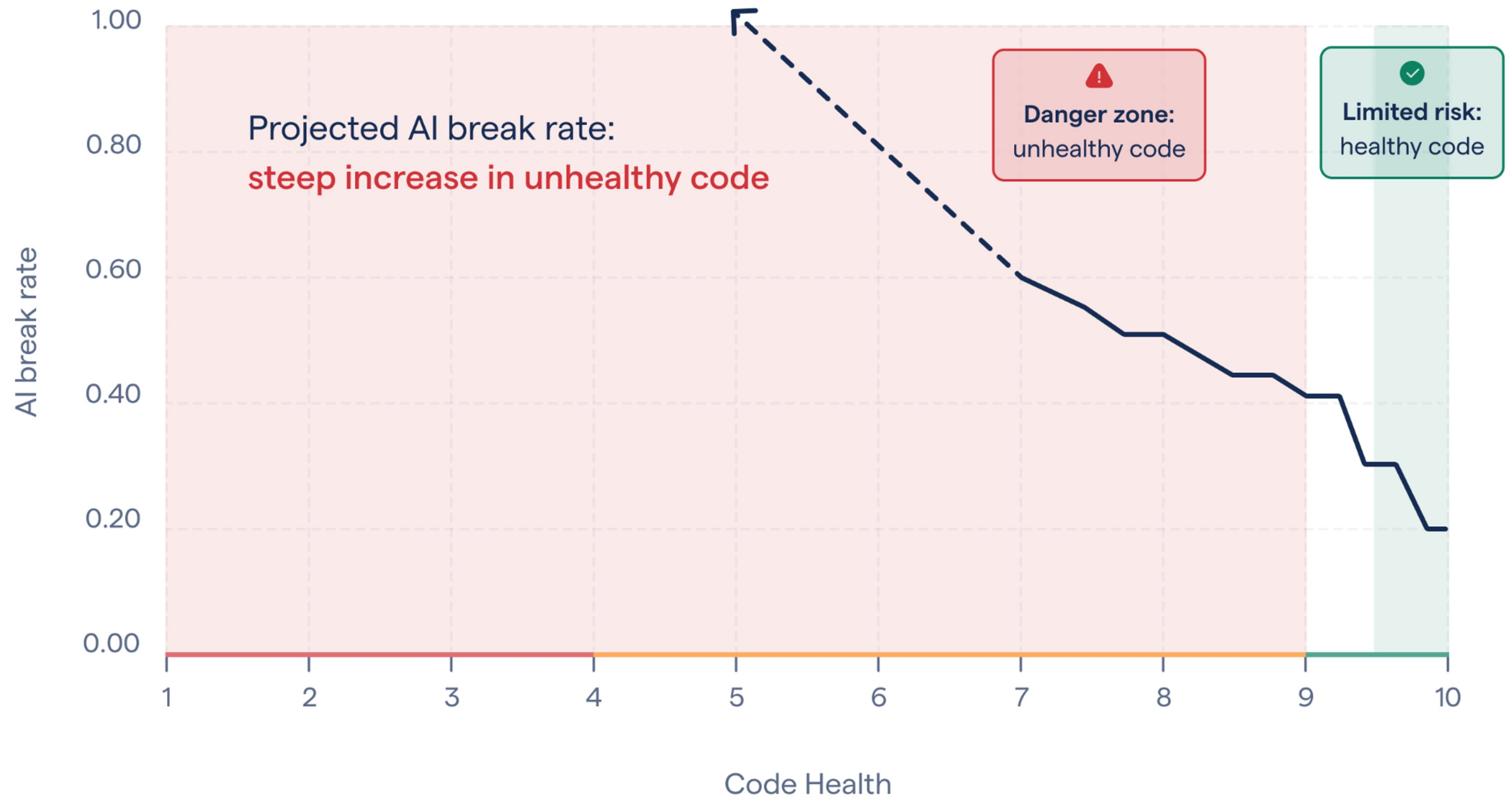
CodeHealth™ determines AI-performance



- New research, **Code for Machines, Not Just Humans**
- Large-scale study, 5000 real programs, 6 different LLMs, refactor code while keeping all tests passing
- LLMs perform better in **healthy code**
- **30% higher defect risk** when applying AI to **problematic code**
- Reality is worse, much worse

“In the AI era, healthy code is no longer optional. It’s a prerequisite for safe, effective, and economically viable AI adoption.”

Adam Tornhill, Founder and CTO of CodeScene

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A powerful automated AI framework:

a self-correcting, agentic workflow that makes AI-assisted development safe, predictable and measurable

CodeHealth™ metric

Validated code quality metric demonstrating proven business impact on delivery performance and defect risk

MCP server

Guides AI agents in real time so they produce maintainable, low-risk code

CodeScene ACE

Automates safe refactorings that help make risky code ready for AI acceleration

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Solving three core problems

Risk assessment & strategic view

CodeHealth™ analysis shows where AI-coding can be **safely applied** today.

AI safeguards for AI-ready areas

A code-health aware MCP server creates **a continuous feedback loop** for AI agents, enabling deterministic, real-time quality checks and **preventing AI from introducing technical debt**.

AI-powered uplift for not-yet-ready areas

Since AI works best on healthy code, using **CodeScene ACE** via **the MCP server**, teams can **automatically refactor problematic code**. Improvements are validated via **objective CodeHealth™ metric**.

Benchmarks shows 2-5x improvement over frontier model,
9x time savings on refactoring.

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Safe AI acceleration for modern engineering teams

Predictable and safe AI adoption

Leaders gain visibility, predictability, and measurable ROI, clear business KPIs around Code Health & delivery

Cleaner, safer AI-generated code

Developers get more reliable AI output and fewer defects

Code quality guidance for AI-agents

AI agents follow CodeHealth™ guidance for simple, clean, easy to evolve code

Faster AI acceleration

Teams modernize high risk areas first and expand AI readiness faster

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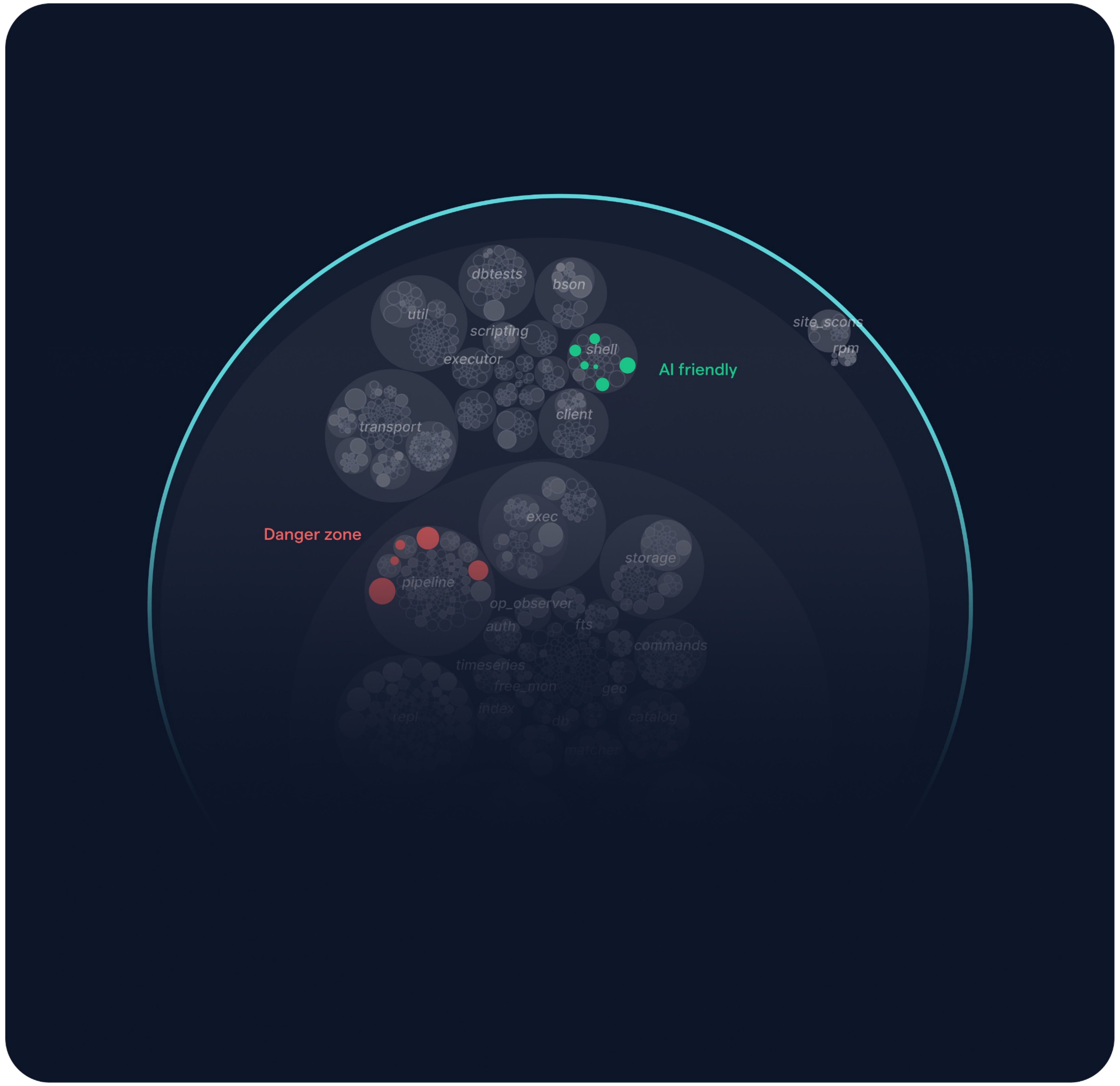
Making sure AI-coding assistants only work on healthy code enables higher ROI

CodeHealth™ visualisation

Example on areas with red, unhealthy code where an AI agent will have a **high break rate**.



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How it works: Enabling AI-friendly code

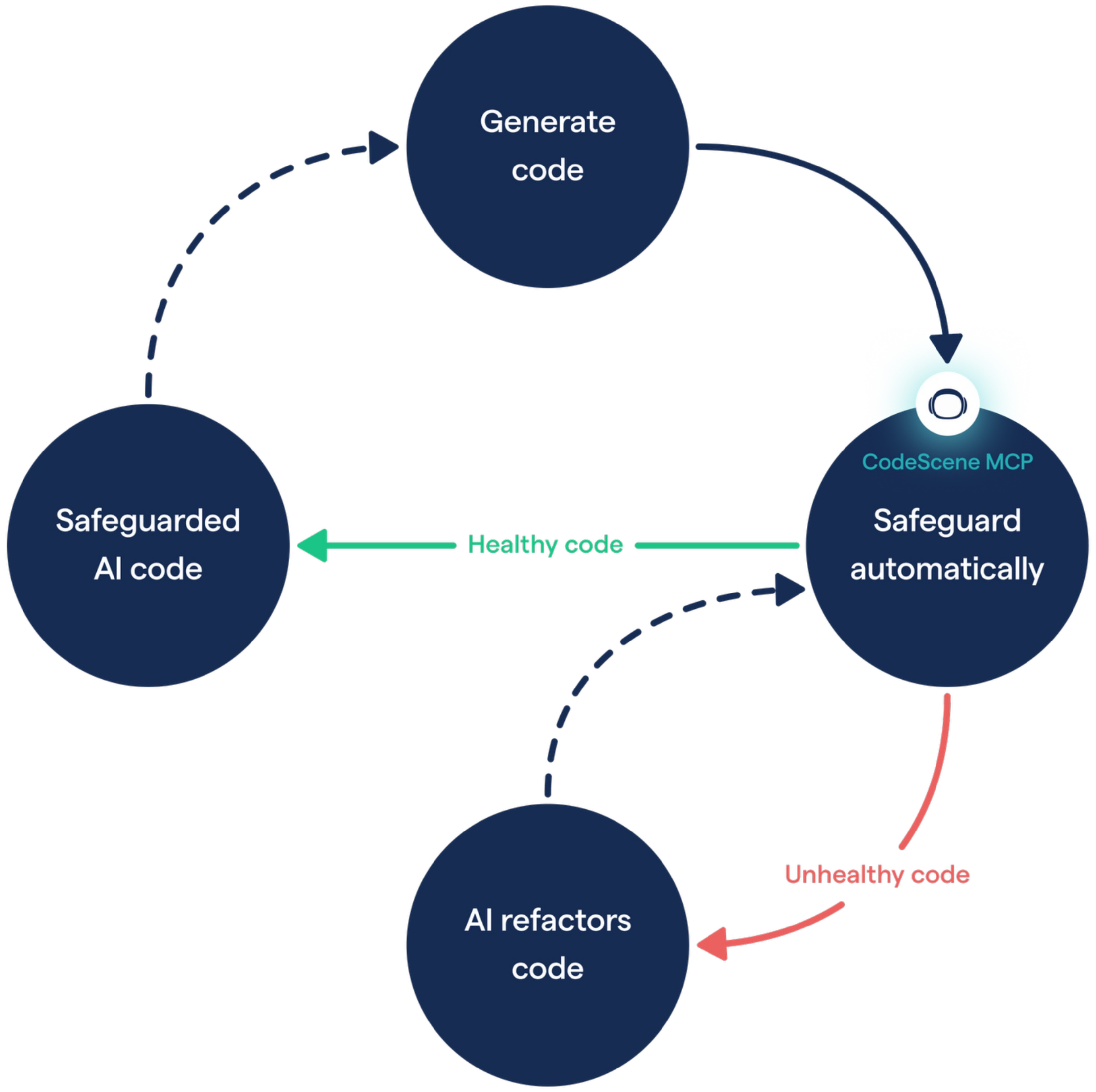
1 AI generates code, guided by CodeHealth™ via **MCP server**

2 **Code evaluated** before it becomes your problem

3 The agent refactors based on **objective metrics**

4 Improvements are **validated**

5 Enjoy the free lunch – **speed with quality**



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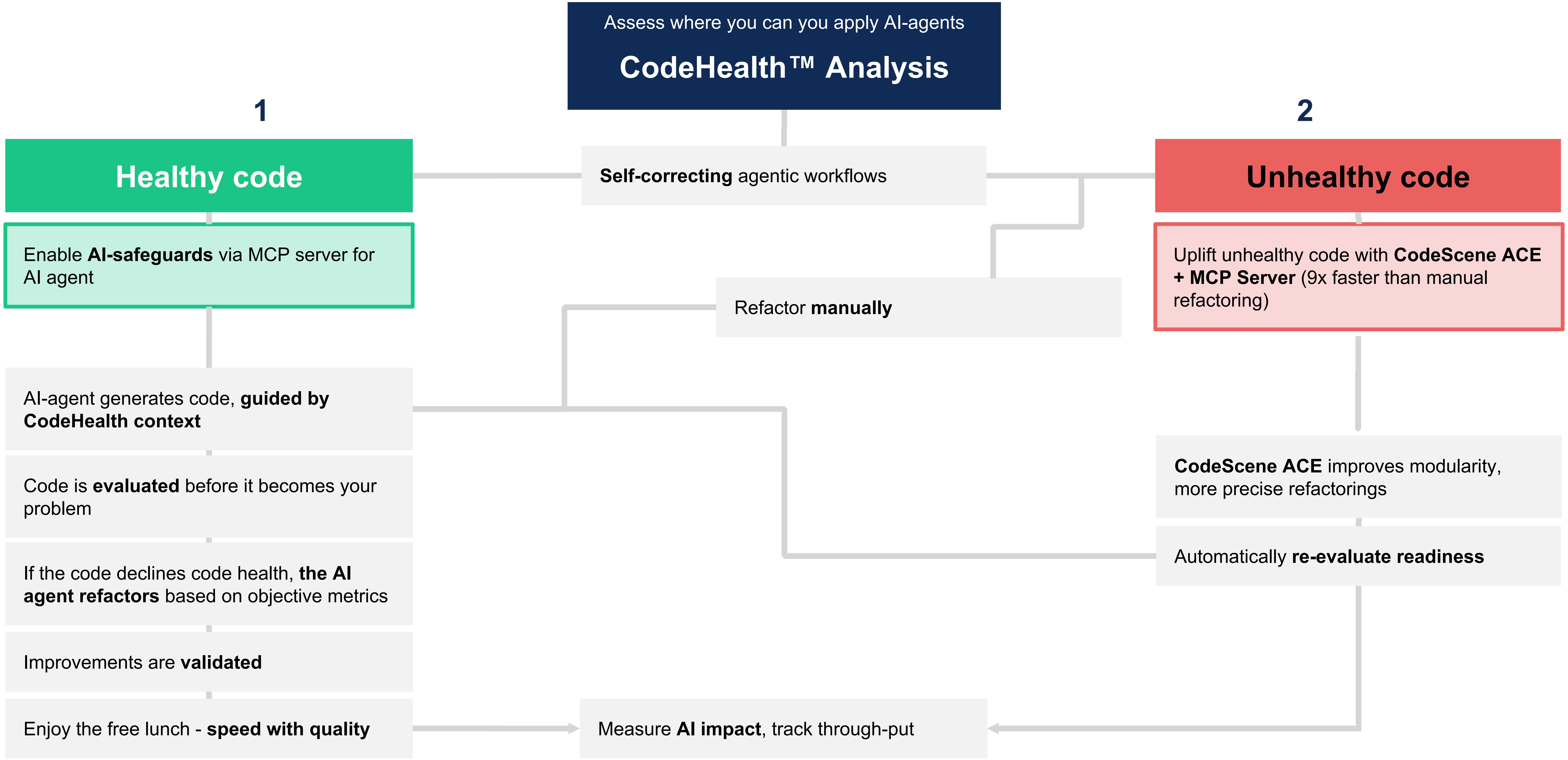
How do you get started?



Assess where you can you apply AI-agents

CodeHealth™ Analysis

1

Healthy code

Enable **AI-safeguards** via MCP server for AI agent

AI-agent generates code, **guided by CodeHealth context**

Code is **evaluated** before it becomes your problem

If the code declines code health, **the AI agent refactors** based on objective metrics

Improvements are **validated**

Enjoy the free lunch - **speed with quality**

Self-correcting agentic workflows

Refactor **manually**

Measure **AI impact**, track through-put

2

Unhealthy code

Uplift unhealthy code with **CodeScene ACE + MCP Server** (9x faster than manual refactoring)

CodeScene ACE improves modularity, more precise refactorings

Automatically **re-evaluate readiness**

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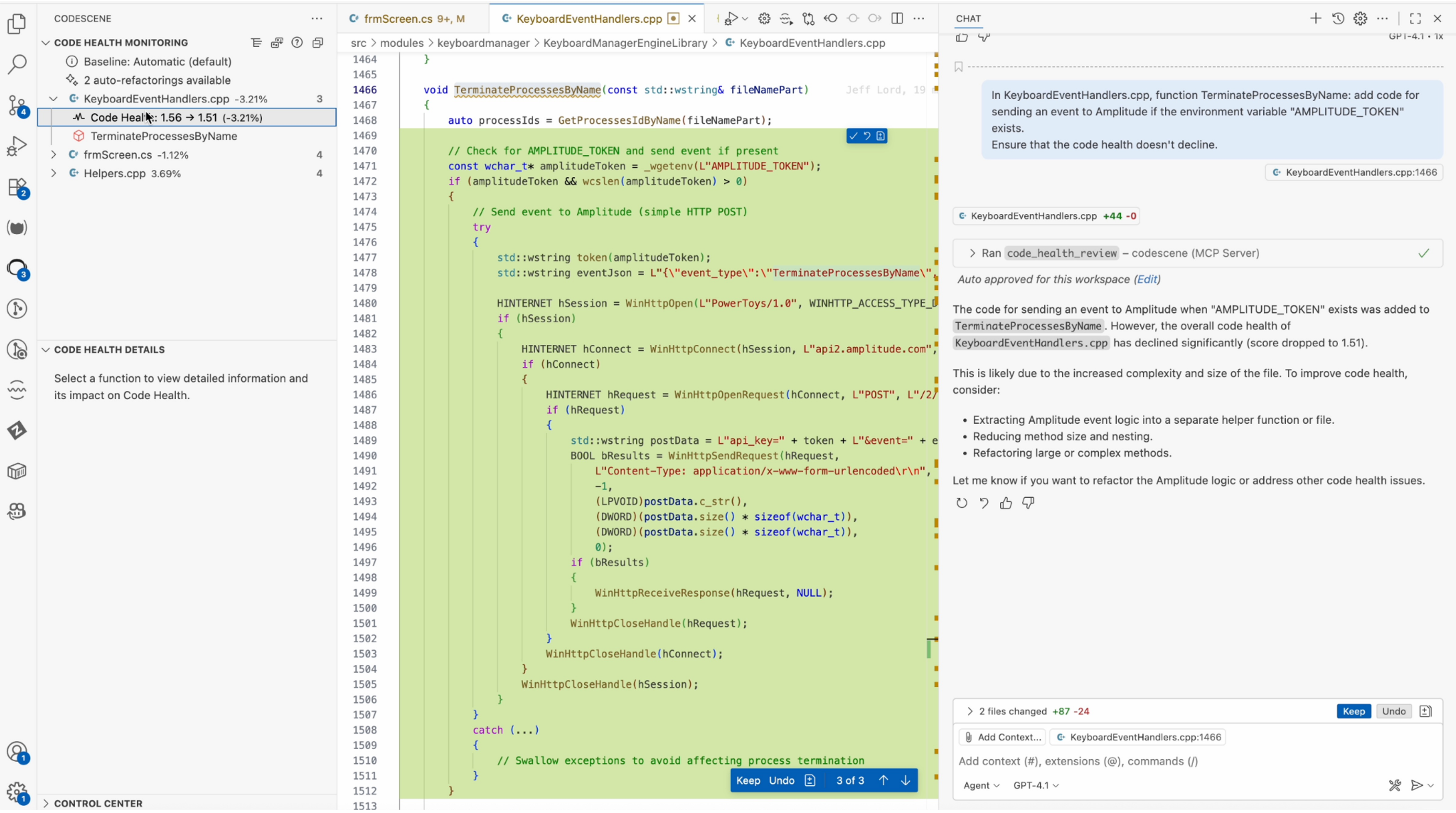
Mission — improve AI performance

MCP: auto-inject Code Health insights into the AI


CODESCENE
CODE HEALTH MONITORING
Baseline: Automatic (default)
2 auto-refactorings available
KeyboardEventHandlers.cpp -3.21% 3
Code Health: 1.56 → 1.51 (-3.21%)
TerminateProcessesByName
frmScreen.cs -1.12% 4
Helpers.cpp 3.69% 4
CODE HEALTH DETAILS

Select a function to view detailed information and its impact on Code Health.

CONTROL CENTER
frmScreen.cs 9+, M
KeyboardEventHandlers.cpp
src > modules > keyboardmanager > KeyboardManagerEngineLibrary > KeyboardEventHandlers.cpp
Jeff Lord, 19

```
}

void TerminateProcessesByName(const std::wstring& fileNamePart)
{
    auto processIds = GetProcessesIdByName(fileNamePart);

    // Check for AMPLITUDE_TOKEN and send event if present
    const wchar_t* amplitudeToken = _wgetenv(L"AMPLITUDE_TOKEN");
    if (amplitudeToken && wcslen(amplitudeToken) > 0)
    {
        // Send event to Amplitude (simple HTTP POST)
        try
        {
            std::wstring token(amplitudeToken);
            std::wstring eventJson = L"{\"event_type\":\"TerminateProcessesByName\",

            HINTERNET hSession = WinHttpOpen(L"PowerToys/1.0", WINHTTP_ACCESS_TYPE_D
            if (hSession)
            {
                HINTERNET hConnect = WinHttpConnect(hSession, L"api2.amplitude.com",
                if (hConnect)
                {
                    HINTERNET hRequest = WinHttpOpenRequest(hConnect, L"POST", L"/2/
                    if (hRequest)
                    {
                        std::wstring postData = L"api_key=" + token + L"&event=" + e
                        BOOL bResults = WinHttpSendRequest(hRequest,
                            L"Content-Type: application/x-www-form-urlencoded\r\n",
                            -1,
                            (LPVOID)postData.c_str(),
                            (DWORD)(postData.size() * sizeof(wchar_t)),
                            (DWORD)(postData.size() * sizeof(wchar_t)),
                            0);
                        if (bResults)
                        {
                            WinHttpReceiveResponse(hRequest, NULL);
                        }
                        WinHttpCloseHandle(hRequest);
                    }
                    WinHttpCloseHandle(hConnect);
                }
                WinHttpCloseHandle(hSession);
            }
        }
        catch (...)
        {
            // Swallow exceptions to avoid affecting process termination
        }
}
```

In KeyboardEventHandlers.cpp, function TerminateProcessesByName: add code for sending an event to Amplitude if the environment variable "AMPLITUDE_TOKEN" exists.
Ensure that the code health doesn't decline.

KeyboardEventHandlers.cpp:1466
KeyboardEventHandlers.cpp +44 -0

Ran `code_health_review` – codescene (MCP Server) ✓

Auto approved for this workspace (Edit)

The code for sending an event to Amplitude when "AMPLITUDE_TOKEN" exists was added to `TerminateProcessesByName`. However, the overall code health of `KeyboardEventHandlers.cpp` has declined significantly (score dropped to 1.51).

This is likely due to the increased complexity and size of the file. To improve code health, consider:

- Extracting Amplitude event logic into a separate helper function or file.
- Reducing method size and nesting.
- Refactoring large or complex methods.

Let me know if you want to refactor the Amplitude logic or address other code health issues.

2 files changed +87 -24
Keep
Undo
Add Context...
KeyboardEventHandlers.cpp:1466
Add context (#), extensions (@), commands (/)
Agent
GPT-4.1

Provide instructions to the AI

The MCP server gets invoked automatically and does a Code Health review.

The Code Health insights let the AI discover the code quality problem and propose a plan 👍

💡 **Tip**: add the code health safeguard as a global custom instruction for your AI-agent.

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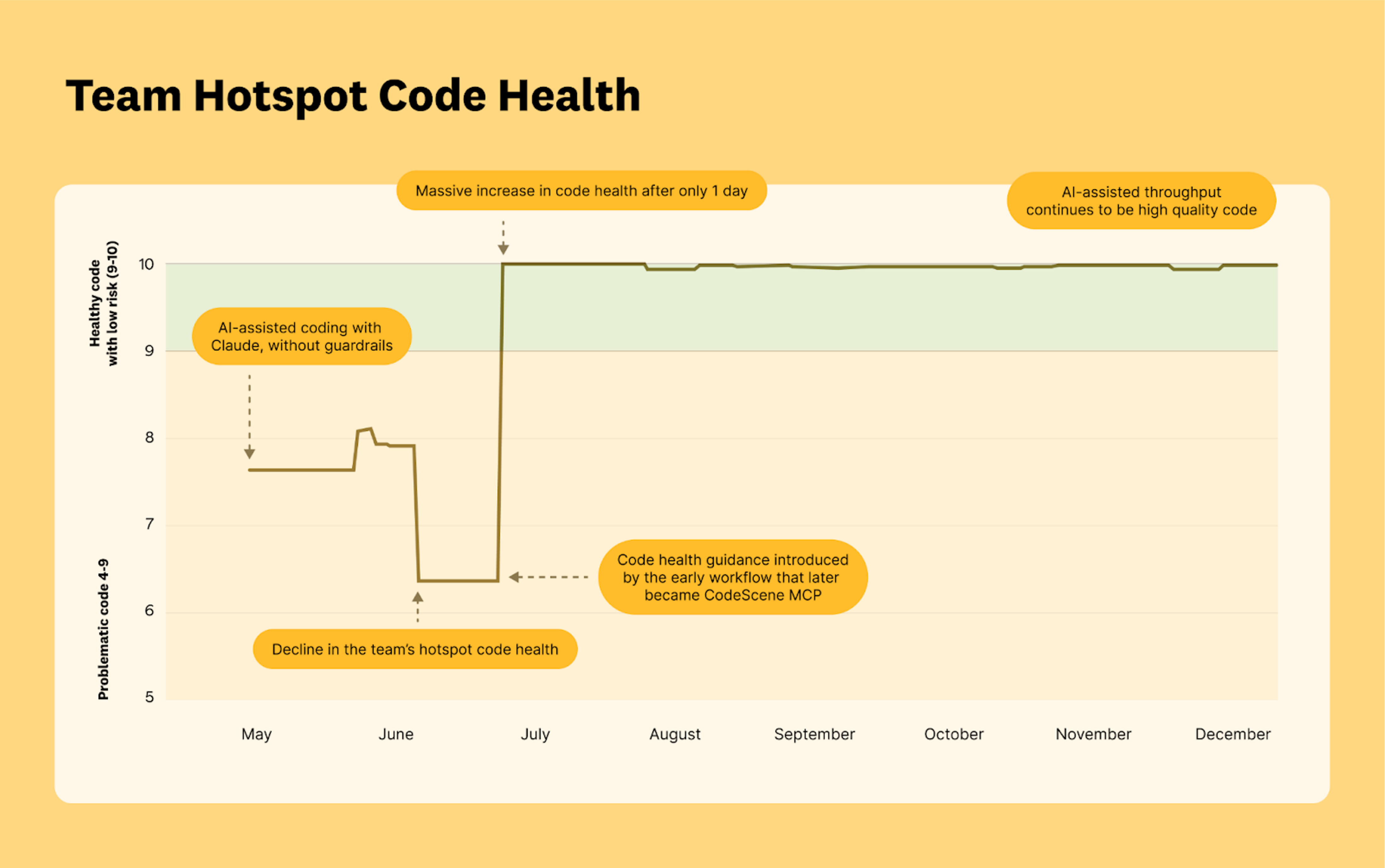
loveholidays proving it in practice

loveholidays

A real-world example comes from **loveholidays**, where early agentic coding with Claude led to **declining code health**. Using an early prototype of what is now **the CodeScene MCP Server**, the team reversed the trend.

Within **5 months**, loveholidays scaled **from 0 to 40% AI-assisted code** while increasing **high throughput** and maintaining **high code quality**.



Massive increase in code health after only 1 day

AI-assisted throughput continues to be high quality code

AI-assisted coding with Claude, without guardrails

Code health guidance introduced by the early workflow that later became CodeScene MCP

Decline in the team's hotspot code health

> *"AI's promise is delivery efficiency, but efficiency without maintainability isn't progress. CodeScene ensures we know the difference."*
>
> **George Malamidis**, VP of Engineering

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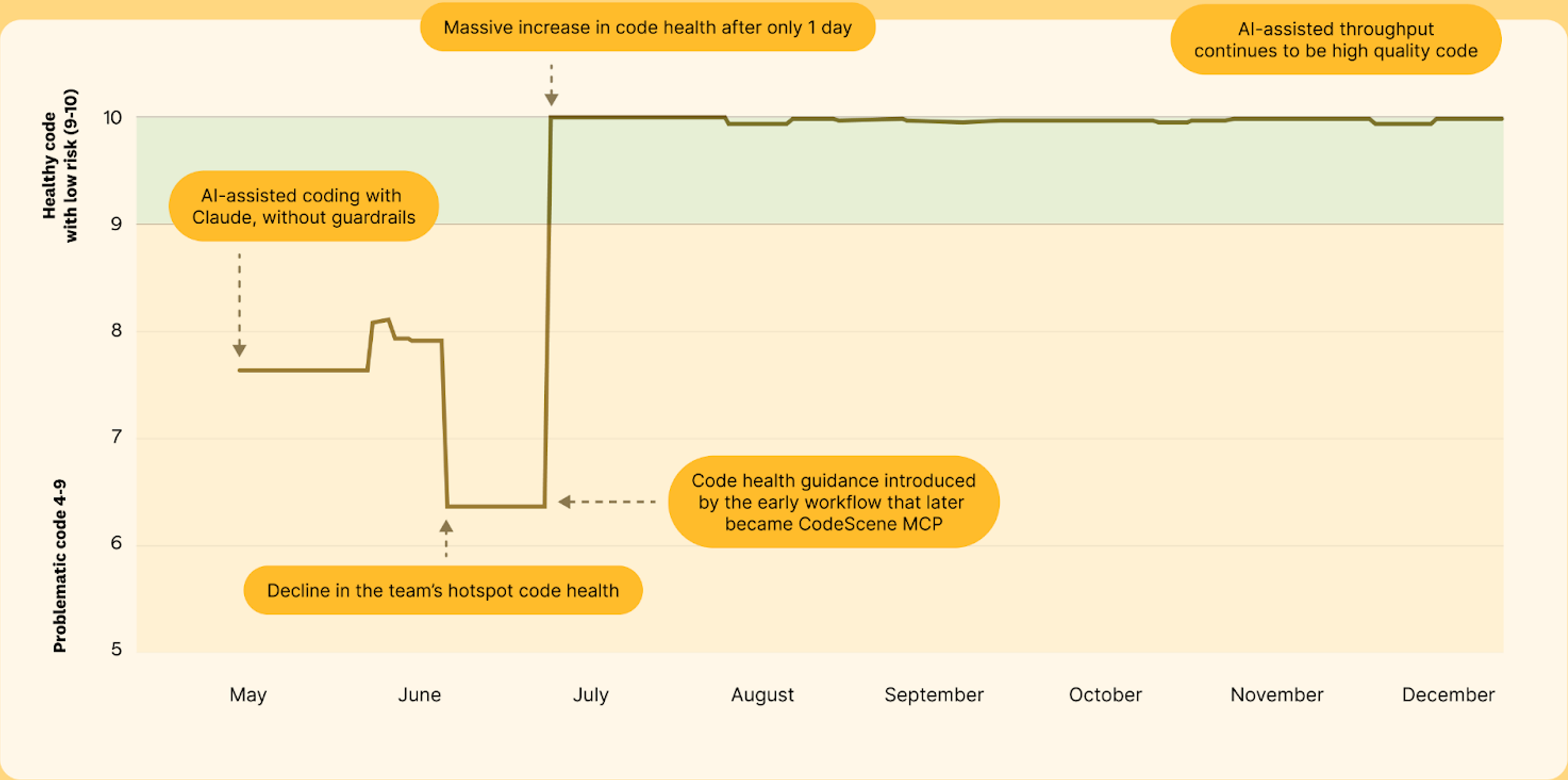
Team Hotspot Code Health



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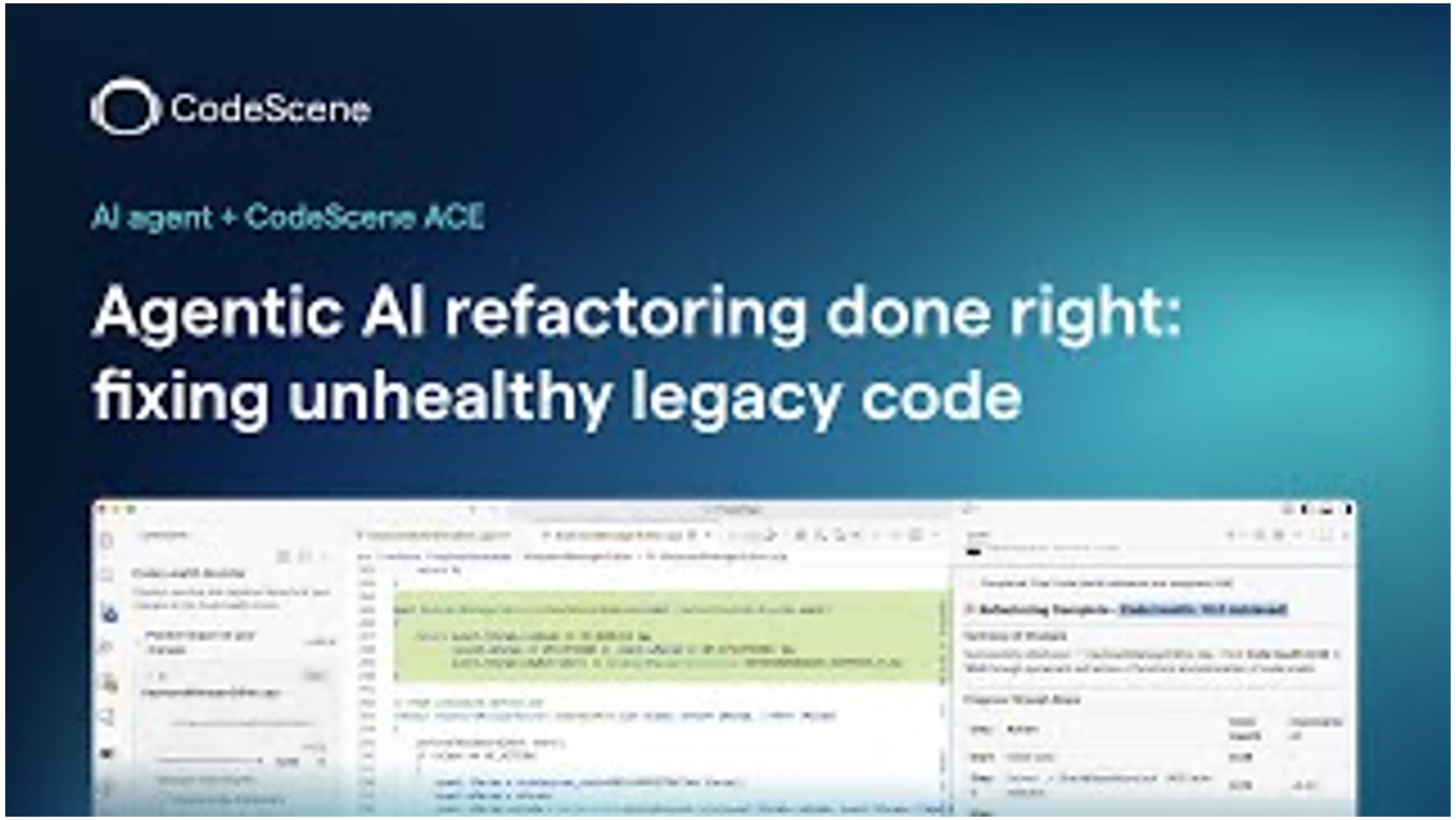
Refactoring time reduced from from days to minutes.



CodeScene

AI agent + CodeScene ACE

Agentic AI refactoring done right: fixing unhealthy legacy code

[Watch the 2-min demo]

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Easy do get started (5 min implementation)

CURSOR Claude Windsurf OpenAI **…and more**

MCP server is already **included** in your license

→ **Get token** for the MCP server

→ **Install** MCP server using one of the methods

→ **Add** server to your **AI-coding assistant**

→ **Copy the Agent.md file**, guiding your AI agent how to use the MCP server including rules that safeguard AI coding

The MCP Server is designed to run in your local environment

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Your Go-To Guide

All the links you need to get started

Get started with MCP

- Easy Getting Started Guide with documentation to set up and use MCP quickly.
- CodeScene ACE via MCP server: Agentic AI refactoring done right: fixing unhealthy legacy code (2-min demo)
- MCP Server in Action: How CodeScene's MCP Server gives AI-coding Assistants Real Code Quality Insights (2-min demo)

Research

- Code for Machines, Not Just Humans: Quantifying AI-Friendliness with Code Health Metrics — research by Adam Tornhill and Markus Borg, CodeScene
- Whitepaper about the research AI-Ready Code: How Code Health Determines AI Performance
- Read the Report "Can GenAI Actually Improve Developer Productivity?"
- Research "Does AI-Assisted Coding Deliver? A Difference-in-Differences Study of Cursor's Impact on Software Projects"
- Forrester predicts rise in technical debt in 2026

Articles and blog post

- Rewriting the Rules of Code: loveholidays Validates that AI Scale Doesn't Have to Result in Technical Debt — International Business Times
- Read Strengthening the Inner Developer Loop: Turn AI Into a Reliable Engineering Partner — Adam Tornhill

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