

First Step to VS Code

关于我



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- 现就职于微软，负责 VS Code Java 相关的开发
- 毕业于上海交通大学网络空间安全学院
- VS Code LeetCode 插件作者
- 《玩转 VS Code》知乎专栏作者
- GitHub: [@jdneo](#)

分享主题

- 基础篇
 - VS Code 简介
 - 动手实验: VS Code 上手体验
 - VS Code 的开源社区运营之道
- 进阶篇
 - VS Code 有哪些工程方面的亮点
 - 动手实验: VS Code 插件开发体验
 - VS Code Live Share & VS Code Remote

First Step to VS Code - 基础篇

Visual Studio Code 简介

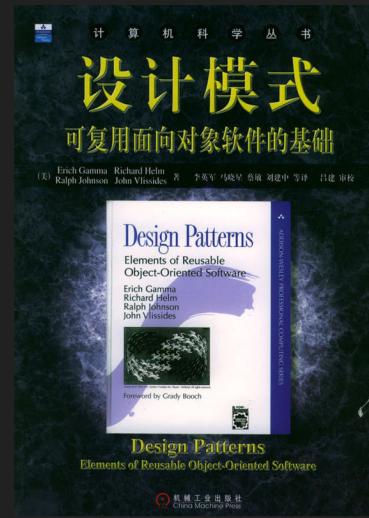
绕不开的人物



Erich Gamma



JUnit



2011年，Erich 加入微软

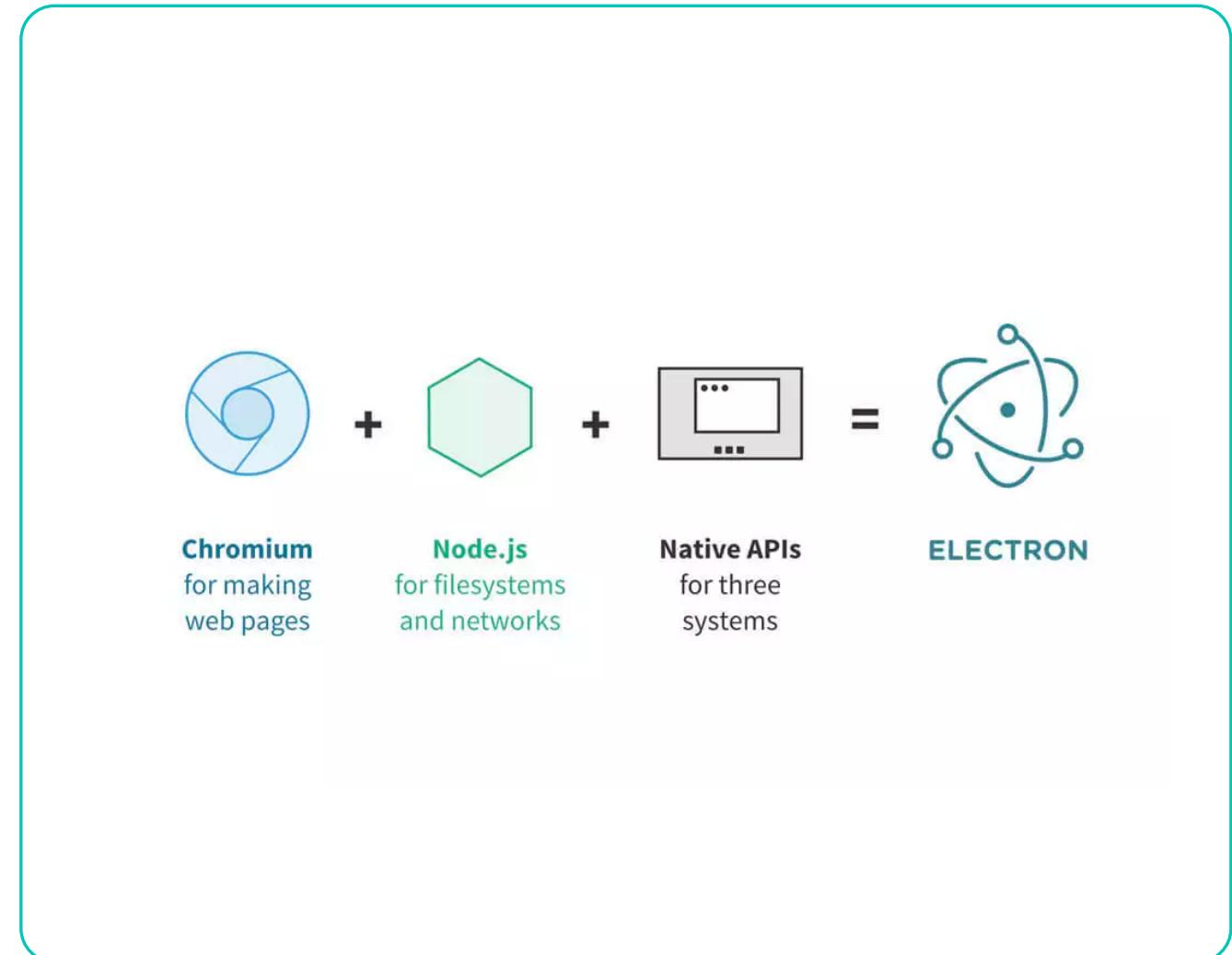
- “Envision new paradigms for **online developer tooling** that will be as successful as the IDE has been for the desktop”
- 定义一个能像桌面IDE一样成功的在线开发工具

Monaco Editor

- Monaco Editor

- 面向浏览器的文本编辑器
- 典型应用
 - TypeScript playground
 - Onedrive
 - ...

基于 Electron 移植



VS Code 发布

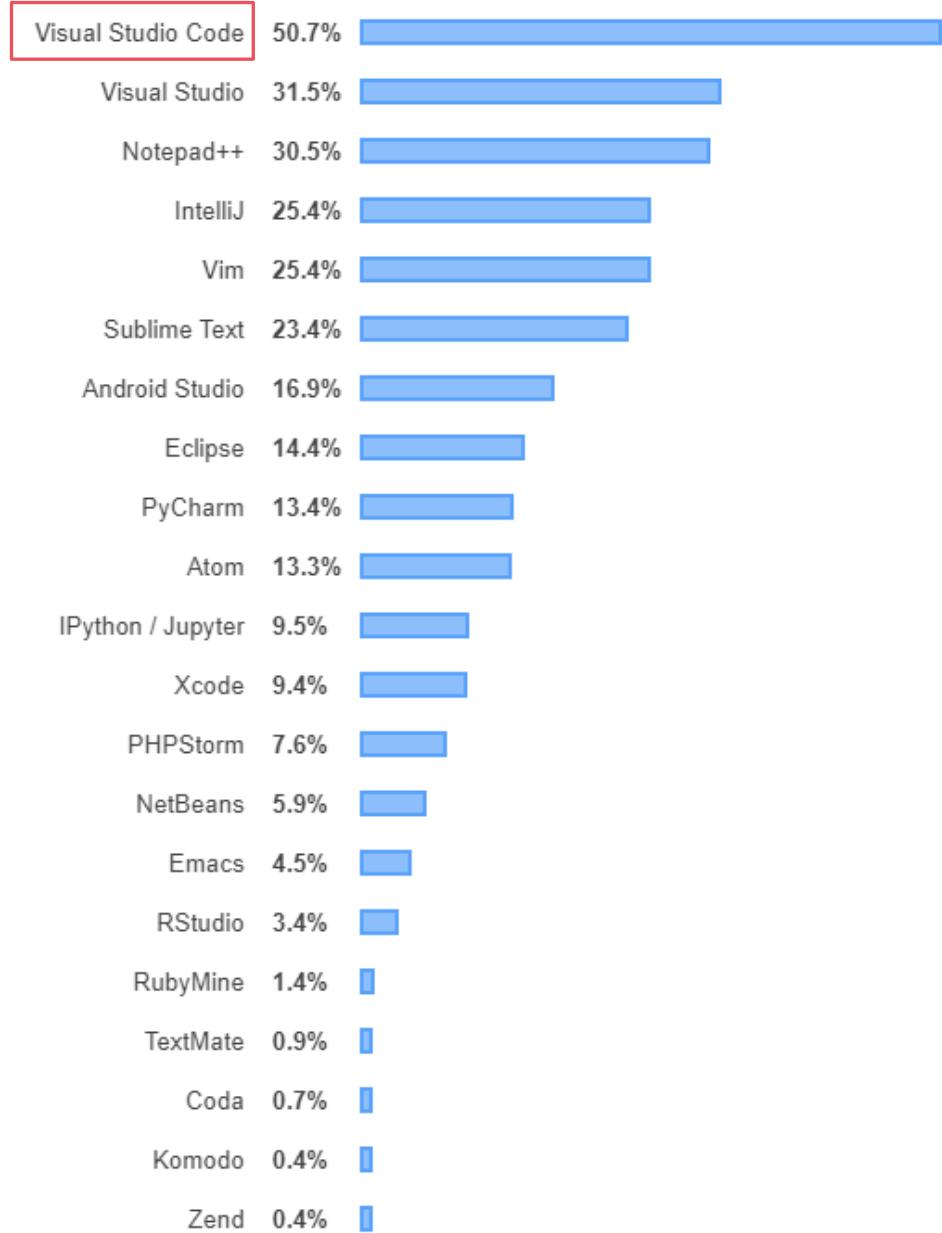
- 2015.4 移植到桌面并发布预览版
- 2015.11 开源
- 2016.4 正式版发布

Stack Overflow 2019 Developer Survey

<https://insights.stackoverflow.com/survey/2019#technology>

Most Popular Development Environments

All Respondents	Web Developers	Mobile Developers	SRE/DevOps
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PYPL Index

10 Top IDE

<https://pypl.github.io/IDE.html>

The Top IDE Index is created by analyzing how often IDEs' download page are searched on Google

Worldwide, Jan 2020 compared to a year ago:

Rank	Change	IDE	Share	Trend
1		Visual Studio	22.83 %	-0.2 %
2	↑	Android Studio	19.36 %	+2.8 %
3	↓	Eclipse	17.47 %	-4.7 %
4	↑↑	Visual Studio Code	5.85 %	+1.6 %
5	↓	NetBeans	5.7 %	-0.6 %
6	↑↑	pyCharm	5.6 %	+1.6 %
7	↓↓	IntelliJ	5.07 %	+0.4 %
8	↑↑	Xcode	4.5 %	+1.0 %
9	↓↓	Sublime Text	3.88 %	-0.2 %
10	↓	Atom	3.3 %	-0.6 %
11		Code::Blocks	1.83 %	-0.1 %
12		Vim	0.86 %	-0.2 %
13		Xamarin	0.68 %	-0.3 %
14		PhpStorm	0.66 %	-0.1 %
15		Komodo	0.37 %	-0.3 %
16		Qt Creator	0.32 %	-0.0 %
17		Emacs	0.26 %	-0.0 %
18		geany	0.25 %	-0.0 %
19		JDeveloper	0.24 %	-0.0 %
20	↑↑	JCreator	0.15 %	-0.0 %

一切围绕 Code

Code editing.
Redefined.

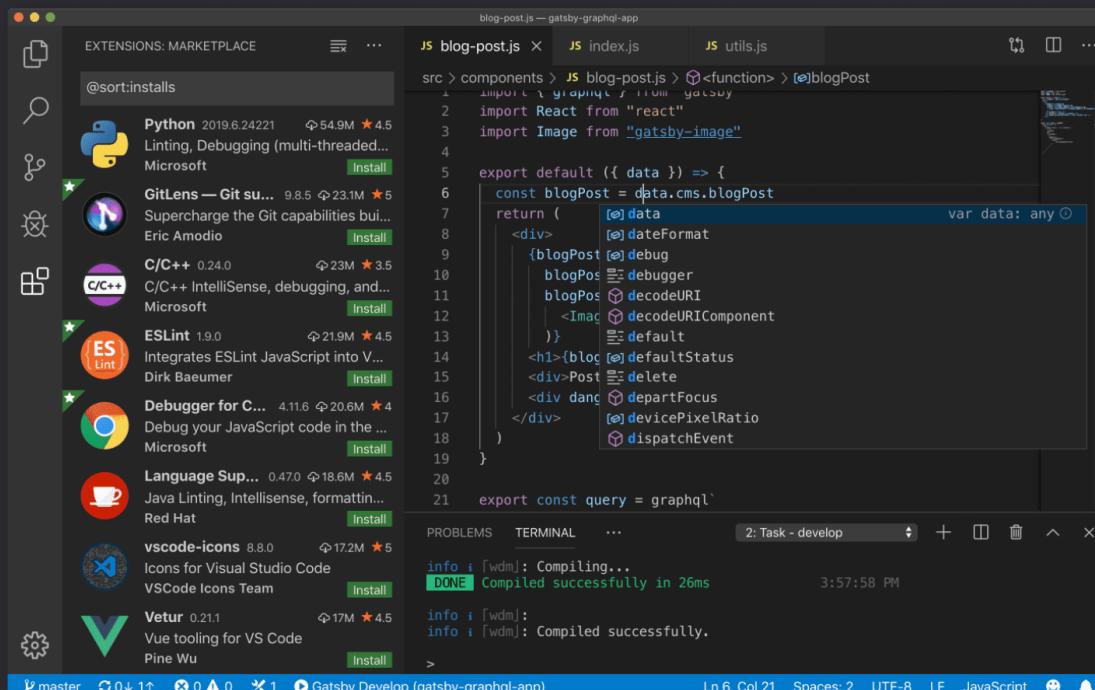
Free. Built on open source. Runs everywhere.

Download for Mac

Stable Build

Other platforms and Insiders Edition

By using VS Code, you agree to its
license and privacy statement.



IntelliSense



Debugging



Built-in Git



Extensions

VS Code 的定位

A New Class of Tools



Editors

keyboard centric
lightweight/fast
file/folders
many languages

VS Code

keyboard centric
lightweight/fast
file/folders
many languages
code understanding
debug

IDEs

project systems
integrated build
code understanding
debug
templates, wizards
designers
ALM integration

VS Code 学习资料

- VS Code 官方网站 - <https://code.visualstudio.com/>
- 玩转 VS Code 知乎专栏 - <https://zhuanlan.zhihu.com/vs-code>
- VS Code 插件开发样例 - <https://github.com/microsoft/vscode-extension-samples>
- VS Code 中文社区公众号



动手实验: VS Code 上手体验

VS Code 的开源社区运营之道

VS Code 代码仓库有多活跃？

- [仓库链接](#)
- [案例](#)

Issue Bot

A screenshot of a GitHub issue conversation interface. At the top, a message from **jrieken** is shown, indicating the issue was closed on Dec 13, 2017. Below this, a message from **vscodebot** (bot) is displayed, stating they locked and limited the conversation to collaborators on Jan 29, 2018. A user profile picture and a large blue 'X' icon are visible on the left. On the right, there are 'Write' and 'Preview' buttons, a lock icon, and a three-dot menu. A message at the bottom states: "This conversation has been locked and limited to collaborators."

jrieken closed this on Dec 13, 2017

vscodebot bot locked and limited conversation to collaborators on Jan 29, 2018

Write Preview

This conversation has been locked and limited to collaborators.

Issue 投票

① 4,709 Open ✓ 79,965 Closed

Author ▾ Label ▾ Projects ▾ Milestones ▾ Assignee ▾ Sort ▾

Sort by				
Newest				
Oldest				
Most commented				
Least commented				
Recently updated				
Least recently updated				
Most reactions				

- ① Allow for floating windows **feature-request layout**
#10121 opened on Aug 4, 2016 by Brakkar Backlog
- ① Tabs for integrated terminal **feature-request integrated-terminal layout ux**
#10546 opened on Aug 15, 2016 by Perkovec Backlog
- ① Allow to change the font size and font of the workbench **feature-request layout**
#519 opened on Nov 24, 2015 by hsdk123 On Deck
- ① vscode.extensions Doesn't Update On Installing / Removing / Disabling Extensions without restarting **api extension-host feature-request**
#14444 opened on Oct 25, 2016 by shanalikhani Backlog
- ① Add option to pin tabs similar to Visual Studio **feature-request ux workbench-tabs**
#12622 opened on Sep 26, 2016 by jez9999 Backlog
- ① Git: Use VS Code as merge editor **feature-request git**
#5770 opened on Apr 25, 2016 by nchammas Backlog

细分的沟通渠道

- 提问题 -> Stack Overflow
- Bug & Feature Request -> GitHub Issue
- 社区交流协同 -> Gitter, Slack
- 资讯发布 -> Twitter @code



公开透明的开发计划

- Roadmap – 年度规划
- Iteration Plans – 月度更新计划
- Endgame – 发布前各事项检查及进度公示
- Release Note – 更新预览及致谢

快速的产品迭代

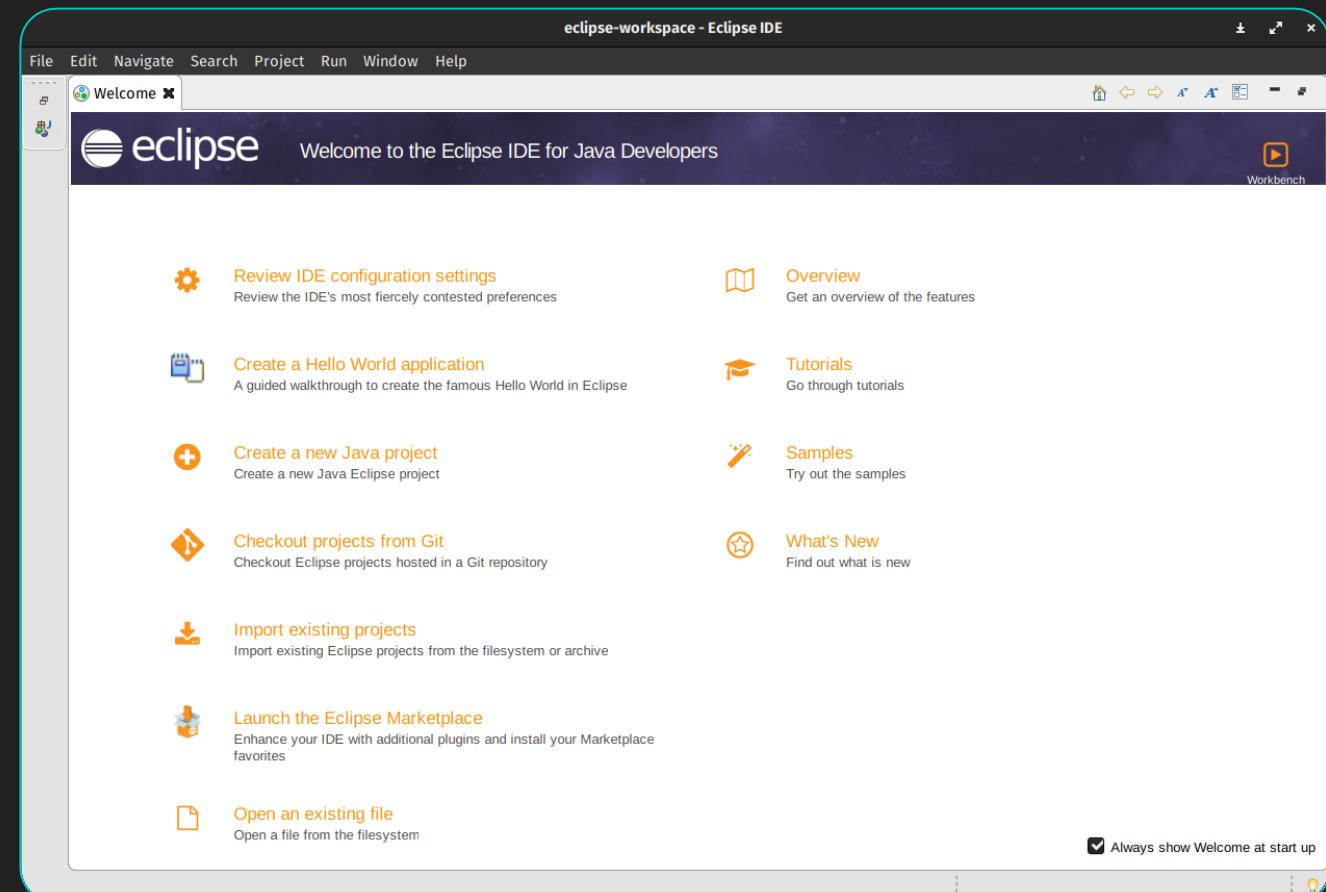
- Stable 版本每月更新
 - 必要时还会有 recover 版本
- Insider 版本每日更新

First Step to VS Code – 进阶篇

VS Code 有哪些工程方面的亮点

从 Eclipse 谈起

- 开放
- 插件丰富
- 插件影响 *Eclipse* 自身



VS Code 如何解决这些问题

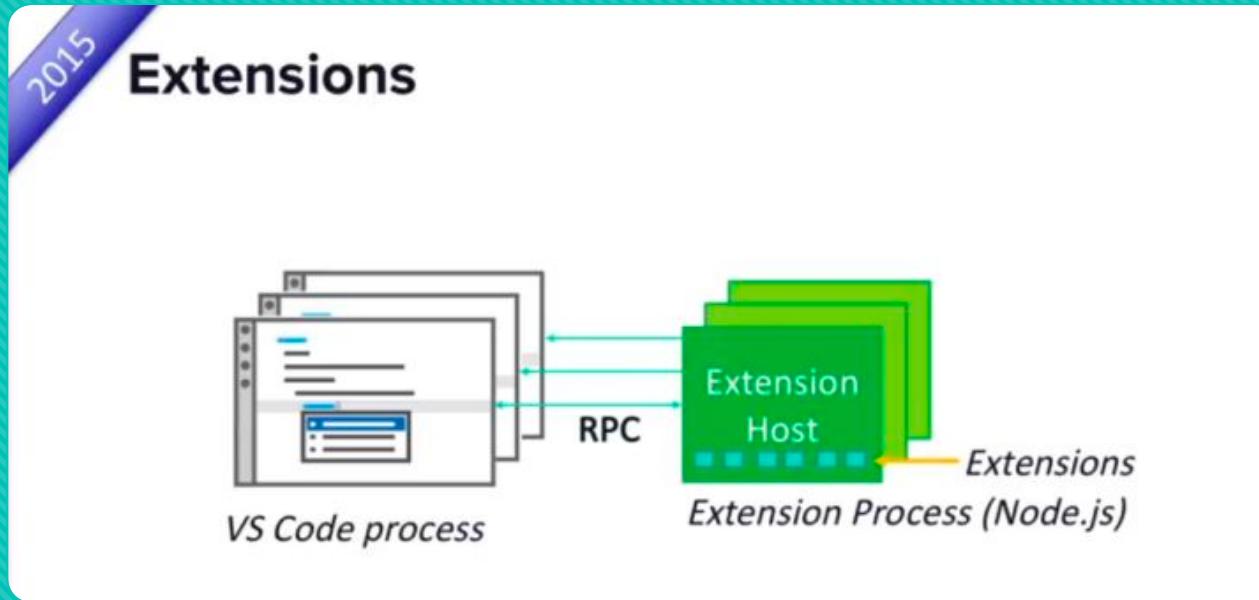
- 统一且克制的插件API
- 进程隔离的插件模型
- UI渲染与业务逻辑隔离
- LSP & DAP

统一且克制的插件 API

- Public APIs 由 [@types/vscode](#) 统一管理，随 VS Code 同步更新版本
- 详尽的 API 文档及样例代码

Process Explorer

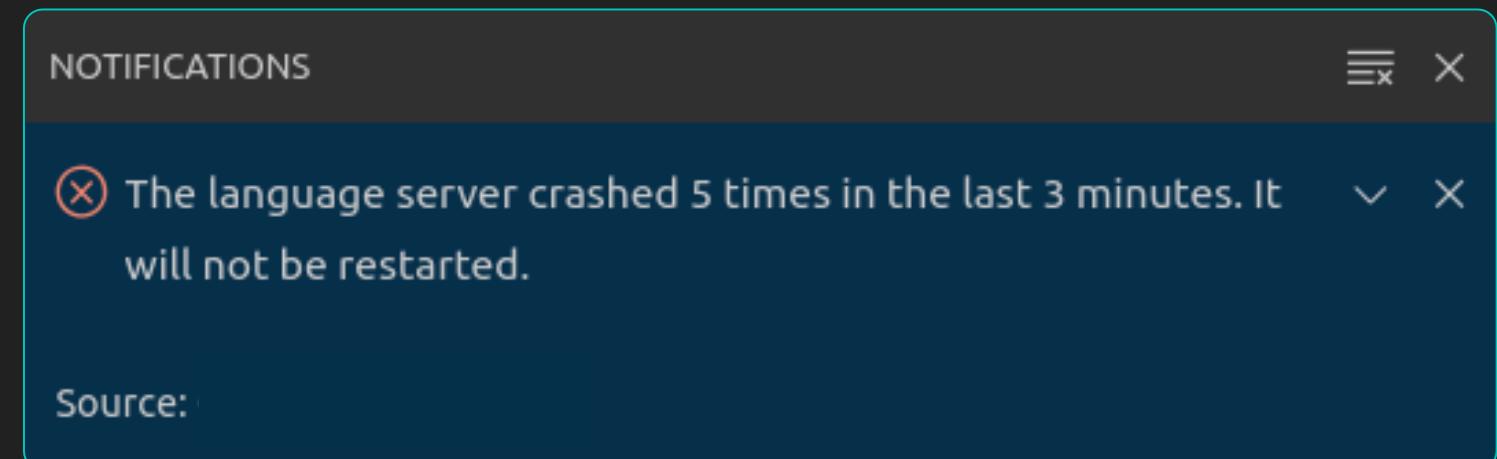
CPU %	Memory (MB)	pid	Name
0	98	31641	code main
0	33	31642	gpu-process
0	41	31667	shared-process
0	180	84226	window (MyJUnit4Test.java — invisible-project-master)
0	82	84227	extensionHost
0	254	84245	/Library/Java/JavaVirtualMachines/adoptopenjdk-11.jdk/Cor
0	25	84228	watcherService
0	25	84234	searchService
0	66	84260	window (Process Explorer)
0	0	84332	/bin/ps -ax -o pid=,ppid=,pcpu=,pmem=,command=



进程隔离的插件模型

进程隔离的插件模型

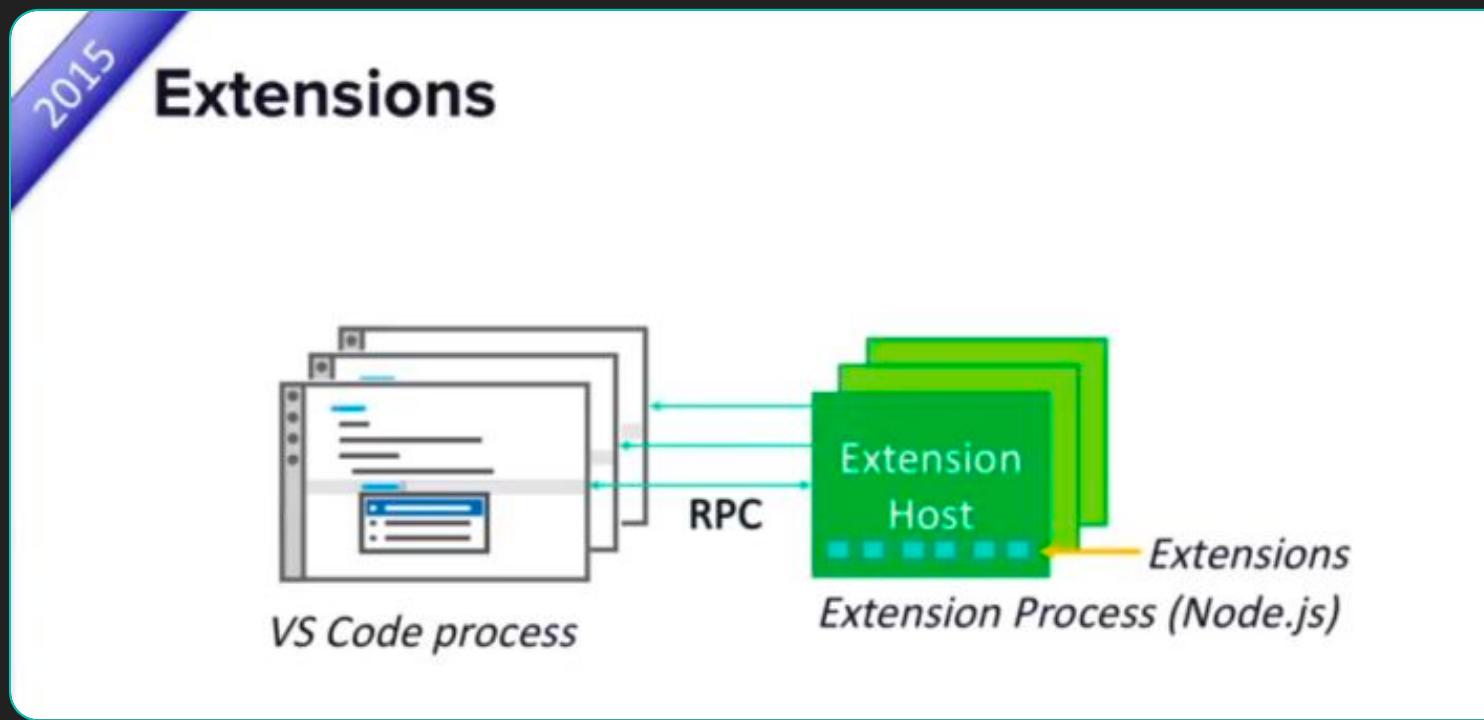
- 插件的不稳定因素不会影响到 VS Code 自身主进程



进程隔离的插件模型

- 避免影响 VS Code 自身启动时间
 - 并通过注册 Activation Event 实现插件的延迟加载
- 避免影响 UI 操作的执行效率
- 避免插件更改 VS Code 自身 UI

UI 渲染与业务逻辑隔离

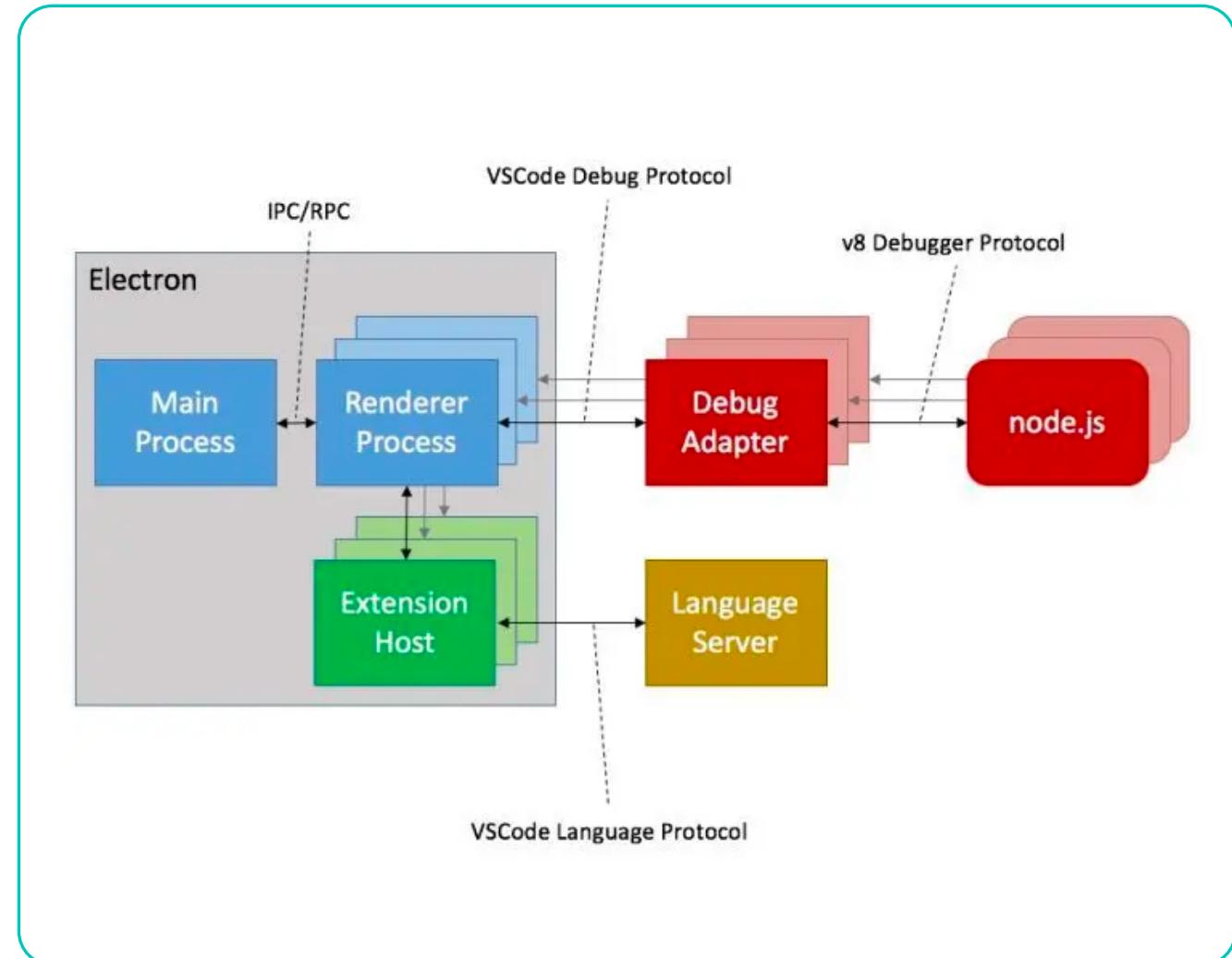


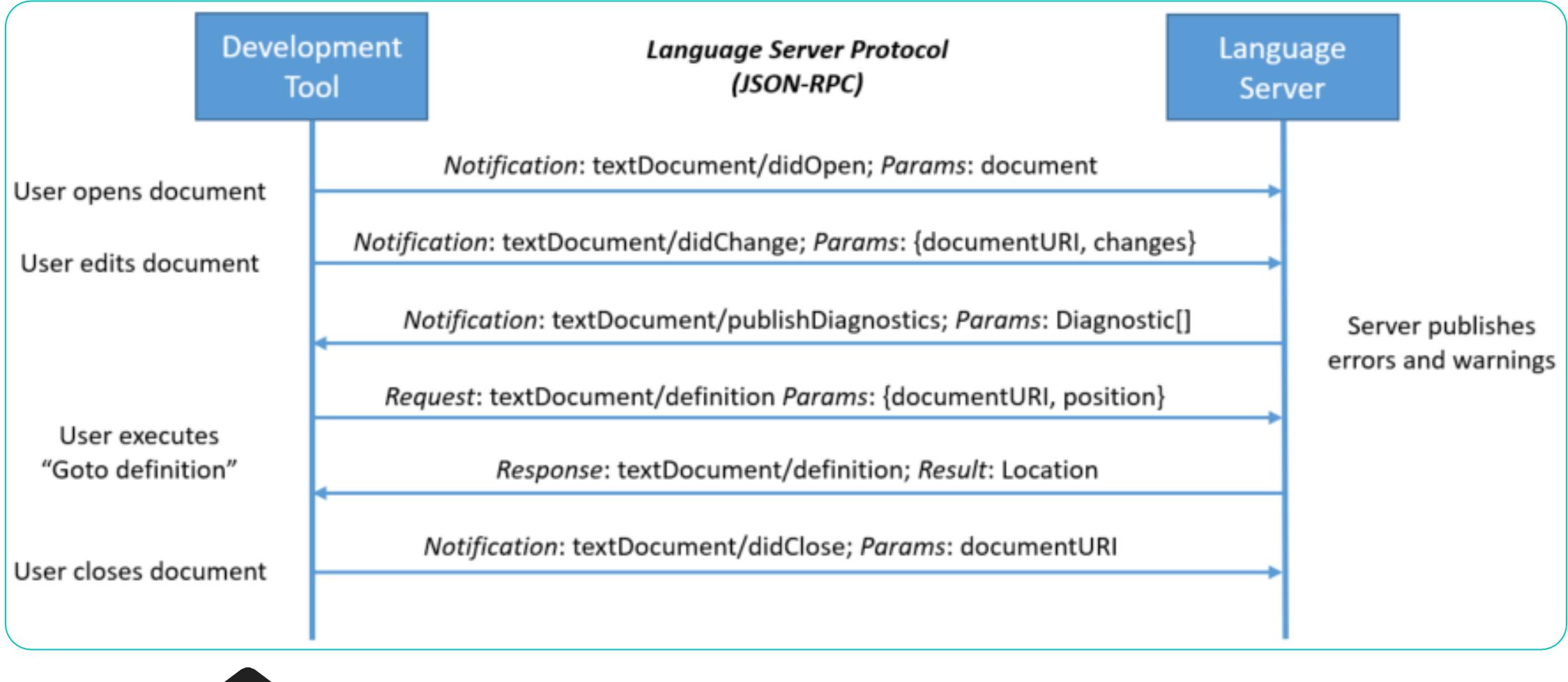
举例：TreeDataProvider

```
export interface TreeDataProvider<T> {  
    onDidChangeTreeData?: Event<T | undefined | null>;  
  
    getTreeItem(element: T): TreeItem | Thenable<TreeItem>;  
  
    getChildren(element?: T): ProviderResult<T[]>;  
  
    getParent?(element: T): ProviderResult<T>;  
}
```

LSP & DAP

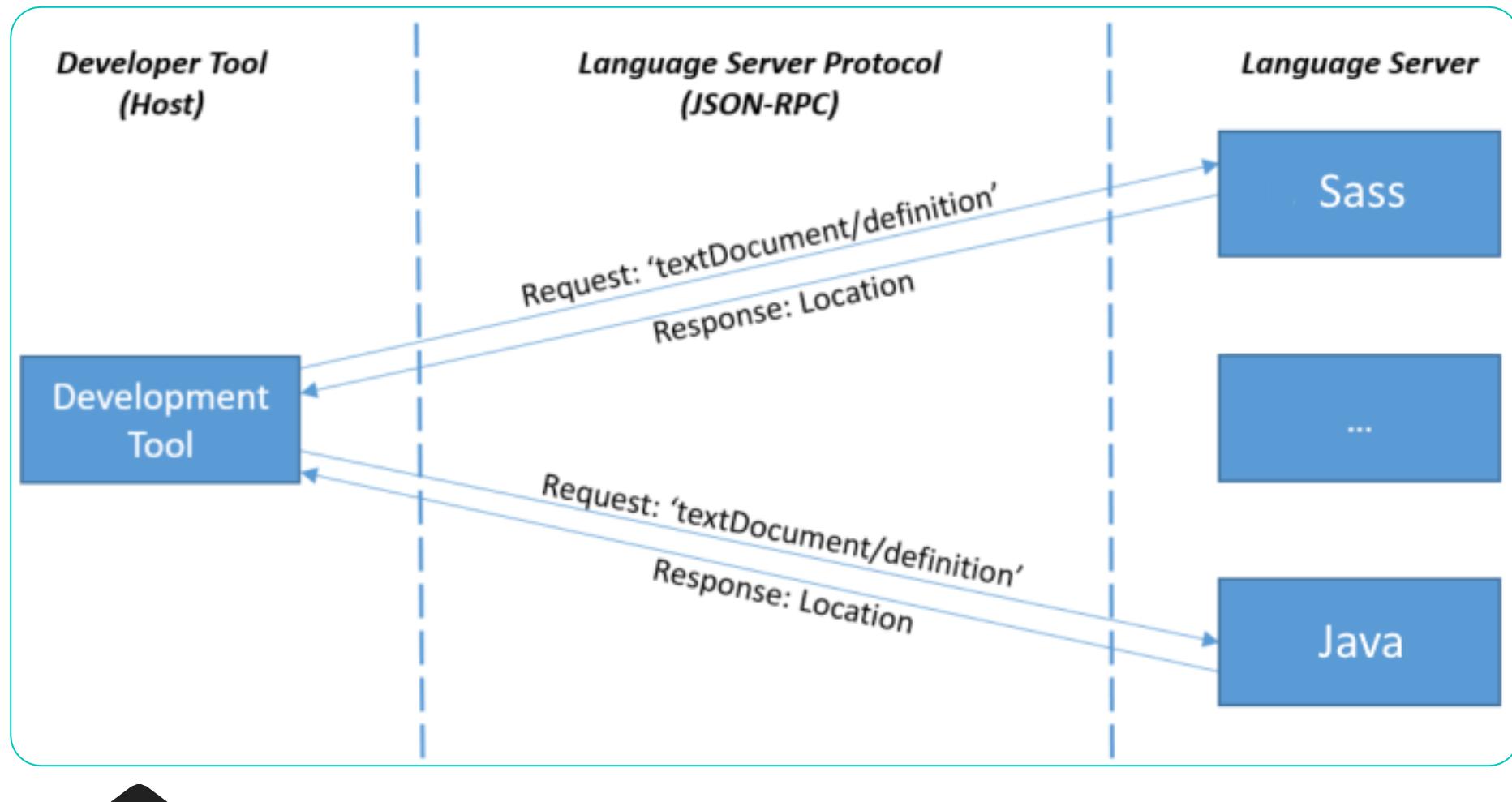
- LSP
 - Language Server Protocol
- DAP
 - Debug Adapter Protocol





Language Server Protocol

- Language Server – 提供某种编程语言相关的特性和功能的服务
- 举例: Goto Definition



Language Server Protocol

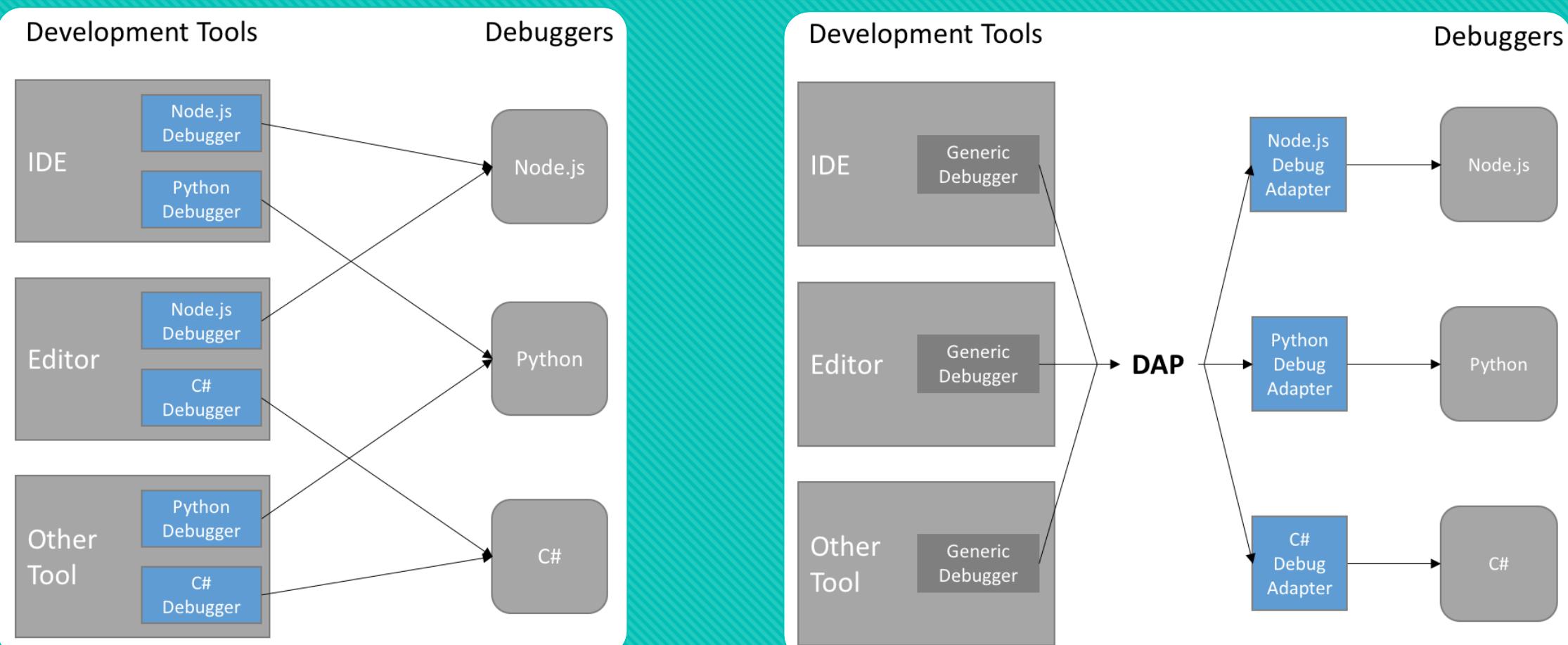
- 同时支持多种语言开发

LSP 的优点

- 精简，抽象
- JSON RPC
 - 简单：好理解
 - 简单：好实现 – 序列化 / 反序列化
- 同时支持多语言开发
- 一个 Language Server 可推广到多种 Client

Debug Adapter Protocol

- 常见的调试功能
 - 断点
 - 多进程, 多线程
 - Watch
 - REPL
 - ...



Debug Adapter Protocol

动手实验: VS Code 插件开发体验

课后作业

- 添加一个配置项，可以配置计时器的时间
- 当计时器的时间配置发生变化时，重新计时
- 参考资料：<https://github.com/microsoft/vscode-extension-samples/tree/master/configuration-sample>

VS Code Remote VS Code Live Share

富有特色

- VS Code Live Share – 协同编辑
- VS Code Remote – 远程 / 云端
- [IntelliJ Platform Roadmap for 2020](#)

VS Code Live Share

- 多人协作开发神器
- 同时支持 Visual Studio 和 Visual Studio Code

The screenshot shows the VS Code Live Share interface. At the top, there's a browser window titled "Lifecycle Events - Thread: [1] Chrome" displaying a code editor with a file named "GuestbookGrid.js". The code defines a matrix generation function. Below the browser is a "Locals" sidebar showing local variables like "this", "webpack_exports", and "cellNumber". To the right is a "VARIABLES" sidebar with a "Local" section containing "this: Object", "webpack_exports: Object", and "cellNumber: undefined". A "CALL STACK" sidebar shows the call stack for the current breakpoint. At the bottom is a "WATCH" sidebar with checkboxes for "All Exceptions", "Uncaught Exceptions", and "signatureMatrix.js src/...". The status bar at the bottom right indicates "Jons-MacBook-Pro-2:vsls-guestbook jonchu\$".

```
import { isBonusCell, isSpecialCell } from "./bonusCells"
import { signatures } from "./signatures";

const COLUMNS = 30;
const ROWS = 20;

const matrix = [];
for (let x = 0; x < COLUMNS; x++) {
  for (let y = 0; y < ROWS; y++) {
    const cellNumber = y + (x * ROWS) + 1;
    const isBonus = isBonusCell(cellNumber);
    const isSpecial = isSpecialCell(cellNumber);

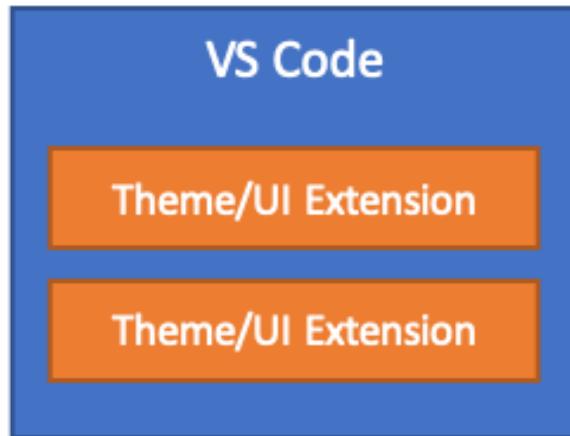
    const signature = signatures.shift();
    matrix.push({ isBonus, isSpecial, signature });
  }
}

export default matrix;
```

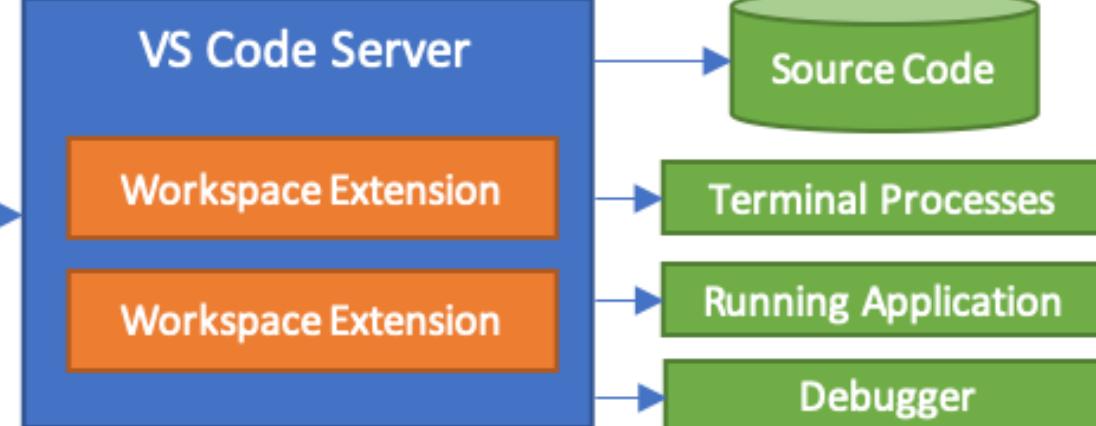
VS Code Remote

- 将容器，远程机器（如VM），Windows Subsystem for Linux（WSL）作为开发环境
- 针对目标部署环境开发，
- 在沙盒中开发，避免破坏本地开发环境
- 帮助其他开发人员更快上手
- 允许多台机器同时访问相同的环境
- 远程调试

Local OS



Remote OS



VS Code Remote 架构图

VS Code Remote

- SSH
- Containers
- WSL
- Visual Studio Online
 - Visual Studio Code
 - Visual Studio
 - 浏览器