

## A Google I/O Idea, The Smartphone AI Value Chain, Apple's Developer Hang-Ups

### 一个 Google I/O 的想法，智能手机 AI 价值链，苹果的开发者的困境

Tuesday, March 11, 2025 2025 年 3 月 11 日，星期二 Listen to Podcast 收听播客

Good morning, 早上好,

On Thursday's episode of Sharp Tech, Andrew and I discussed the streaming landscape and why I'm optimistic about YouTube. Then, on yesterday's episode, we talked about Apple's AI challenges, and why chatbots have — at least to date — been the killer app for AI.

在周四的 Sharp Tech 节目中，安德鲁和我讨论了流媒体环境，以及我为什么对 YouTube 感到乐观。然后，在昨天的节目中，我们谈到了苹果的 AI 挑战，以及为什么聊天机器人——至少到目前为止——一直是 AI 的杀手级应用。

On to the Update: 更新内容：

### A Google I/O Idea 一个 Google I/O 的想法

From The Verge, in February:

来自The Verge，在二月份：

Google's next I/O developer conference will take place on May 20th and May 21st, the company announced today. The event will be "open to everyone online" and will include "livestreamed keynotes and sessions," according to an FAQ. Like past years, there will also be an in-person component at the Shoreline Amphitheatre in Mountain View, California...

谷歌今天宣布，下一届 I/O 开发者大会将于 5 月 20 日和 5 月 21 日举行。根据常见问题解答，该活动将“向所有人在线开放”，并将包括“直播的主题演讲和会议”。与往年一样，活动还将在加利福尼亚州山景城的海岸线露天剧场举行线下活动.....

The last Google I/O kicked off on May 14th, 2024. The event was packed with a ton of announcements, including new Gemini AI features and models, the Project Astra AI assistant, its Veo generative AI video model, and a big AI-focused overhaul for Google Search. The 2023 edition of I/O was filled with AI news, too, but at that show, Google also announced the Pixel Fold, Pixel Tablet, and Pixel 7A.

最后一次 Google I/O 于 2024 年 5 月 14 日启动。此次活动充满了大量的公告，包括新的 Gemini AI 功能和模型、Project Astra AI 助手、Veo 生成式 AI 视频模型，以及针对 Google Search 的重大 AI 重点改版。2023 年的 I/O 版本也充满了 AI 新闻，但在那场展会上，Google 还宣布了 Pixel Fold、Pixel Tablet 和 Pixel 7A。

I was chatting with John Gruber after recording this morning's Dithering, and he posited a very funny scenario: a Google executive takes the stage, pulls out an Android phone, and says, "Google, when is

my mom's flight landing?"

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我在录制完[今天早上的 Dithering](#)后与 John Gruber 聊天，他提出了一个非常有趣的场景：一位谷歌高管走上舞台，拿出一部安卓手机，说：“谷歌，我妈妈的航班什么时候降落？”

That's in reference to this demo in last year's WWDC keynote:

这是指去年的 WWDC 主题演讲中的这个演示：

What would make this potential I/O prank effective is if it works, live and on-stage, not pre-recorded and (probably) doctored. It certainly seems possible, no? At a minimum, it surely seems more likely that Google could actually ship this feature.

使这个潜在的 I/O 恶作剧有效的因素是它在现场和舞台上实时进行，而不是预先录制的（可能被篡改的）。这似乎确实是可能的，不是吗？至少，这似乎更有可能，谷歌实际上可以推出这个功能。

## The Smartphone AI Value Chain

### 智能手机人工智能价值链

Yesterday's Article [Apple AI's Platform Pivot Potential](#), to the extent it referenced past Stratechery pieces, focused on the difference between Aggregators and Platforms. There are two other threads to pull on, however.

昨天的文章 [苹果 AI 的平台转型潜力](#)，在提到过去的 Stratechery 文章时，重点讨论了聚合器和平台之间的区别。然而，还有两个其他的线索可以深入探讨。

First, go back to just last fall and the Article I wrote after the most recent Pixel launch. From [Integration and Android](#):

首先，回到去年秋天，我在最近的 Pixel 发布后写的文章。从 [集成与 Android](#):

Yesterday Google announced its ninth iteration of Pixel phones, and as you might expect, the focus was on AI. It is also unsurprising that the foundation of Osterloh's pitch at the beginning of the keynote was about integration. What was notable is that the integration he focused on actually didn't have anything to do with Pixel at all, but rather Android and Google:

昨天，谷歌宣布了其第九代 Pixel 手机，正如你所预期的，重点是人工智能。奥斯特洛在开场演讲中所强调的基础也是关于整合，这并不令人惊讶。值得注意的是，他所关注的整合实际上与 Pixel 毫无关系，而是与 Android 和谷歌有关：

*We're re-imagining the entire OS layer, putting Gemini right at the core of Android, the world's most popular OS. You can see how we're innovating with AI at every layer of the tech stack: from the infrastructure and the foundation models, to the OS and devices, and the apps and services you use every day. It's a complete end-to-end experience that only Google can deliver. And I want to talk about the work we're going to integrate it all together, with an integrated, helpful AI assistant for everyone. It changes how people interact with their mobile devices, and we're building it right into Android.*

我们正在重新构想整个操作系统层，将 Gemini 置于 Android 的核心位置，Android 是全球最受欢迎的操作系统。您可以看到我们如何在技术栈的每一层进行 AI 创新：从基础设施和基础模型，到操作系统和设备，以及您每天使用的应用程序和服务。这是一个只有 Google 才能提供的完整端到端体验。我想谈谈我们将如何将这一切整合在一起，提供一个集成的、对每个人都有帮助的 AI 助手。这改变了人们与移动设备的互动方式，我们正在将其直接构建到 Android 中。

*For years, we've been pursuing our vision of a mobile AI assistant that you can work with like you work with a real life personal assistant, but we've been limited by the bounds of what existing technologies can do. So we've completely rebuilt the personal assistant experience around our Gemini models, creating a novel kind of computing help for the Gemini era.*

多年来，我们一直在追求一个移动 AI 助手的愿景，您可以像与现实生活中的个人助手一样与之合作，但我们受到现有技术能力的限制。因此，我们完全围绕我们的 Gemini 模型重建了个人助手体验，为 Gemini 时代创造了一种新型的计算帮助。

*The new Gemini assistant can go beyond understanding your words, to understanding your intent, so you can communicate more naturally. It can synthesize large amounts of information within seconds, and tackle complex tasks. It can draft messages for you, brainstorm with you, and give you ideas on how you can improve your work. With your permission, it can offer unparalleled personalized help, accessing relevant information across your Gmail Inbox, your Google calendar, and more. And it can reason across personal information and Google's world knowledge, to provide just the right help and insight you need, and it's only possible through advances we made in Gemini models over the last six months. It's the biggest leap forward since we launched Google Assistant. Now we're going to keep building responsibly, and pushing to make sure Gemini is available to everyone on every phone, and of course this starts with*

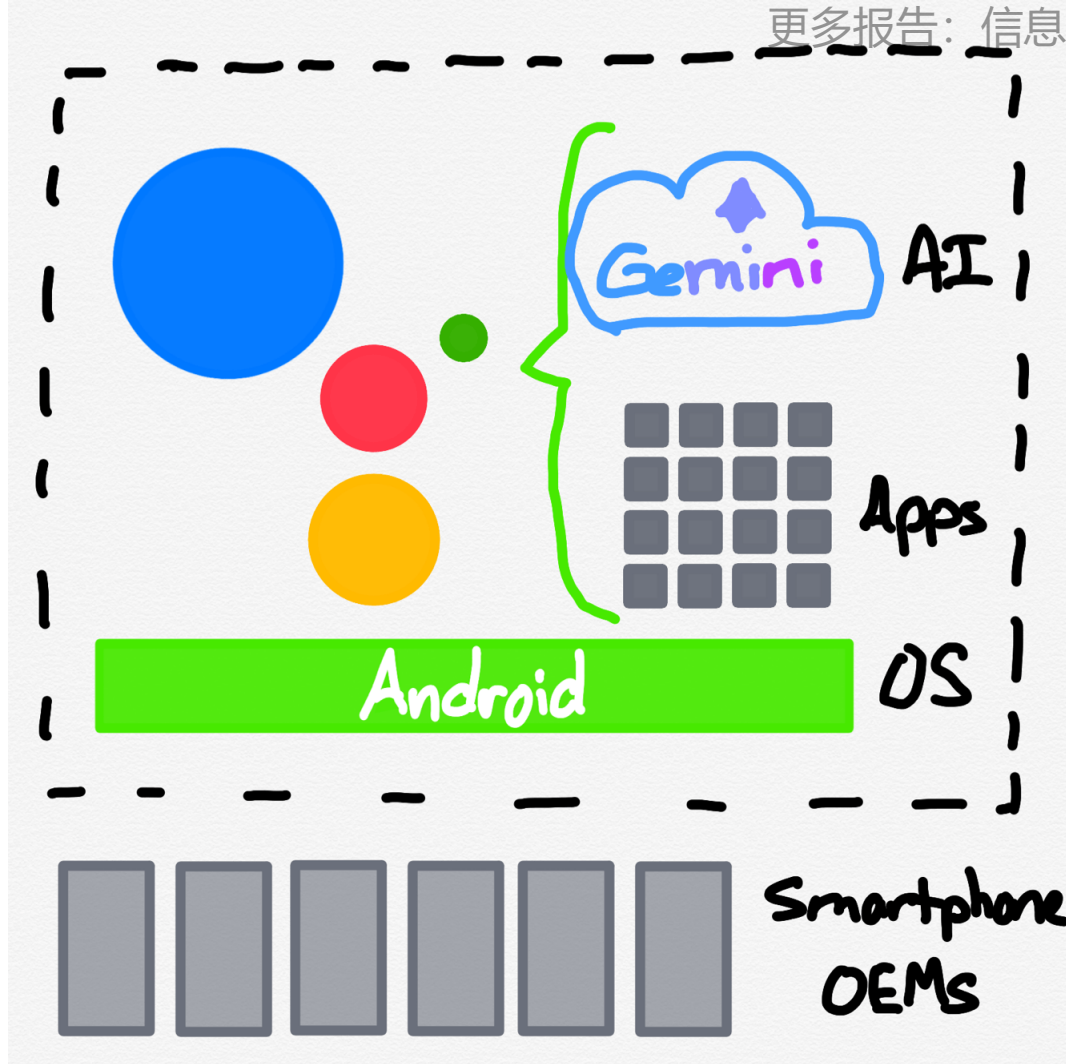
新的 Gemini 助手可以超越理解你的话语，理解你的意图，让你能够更自然地沟通。它可以在几秒钟内合成大量信息，并处理复杂任务。它可以为你起草消息，与您头脑风暴，并给你提供改进工作的想法。在你的许可下，它可以提供无与伦比的个性化帮助，访问你 Gmail 收件箱、Google 日历等相关信息。它可以在个人信息和 Google 的世界知识之间进行推理，以提供你所需的恰当帮助和见解，这一切都是通过我们在过去六个月中对 Gemini 模型的进展实现的。这是自我们推出 Google Assistant 以来最大的飞跃。现在我们将继续负责任地构建，并努力确保 Gemini 能够在每部手机上为每个人提供服务，当然这首先从 Android 开始。

This may seem obvious, and in many respects it is: Google is a services company, which means it is incentivized to serve the entire world, maximizing the leverage on its costs, and the best way to reach the entire world is via Android...my takeaway from yesterday's event is [that] Android still matters most, and the integration Google is truly betting on is with the cloud...Google's real bet is that owning the information stack matters more than owning the tech stack, particularly when you have the most capable cloud infrastructure to act on it. That is, of course, the same Android strategy as always; the bet is that AI does the hard work of making it more attractive to premium customers than it has to date.

这可能看起来很明显，在许多方面确实如此：谷歌是一家服务公司，这意味着它有动力为整个世界服务，最大化其成本的杠杆，而接触整个世界的最佳方式是通过 Android.....我从昨天的活动中得到的结论是，Android 仍然是最重要的，而谷歌真正押注的整合是与云的整合.....谷歌真正的赌注是拥有信息堆栈比拥有技术堆栈更重要，特别是当你拥有最强大的云基础设施来进行操作时。当然，这与一贯的 Android 战略是一样的；赌注在于人工智能能够做艰苦的工作，使其对高端客户的吸引力超过以往。

Like I said, this isn't exactly a new strategy; the bet, however, is that Gemini is so useful — particularly if you use Gmail, Google Calendar, Google Photos, etc. — that Google's long-running integration of web services and the smartphone OS actually becomes a reason to switch. This results in a point of integration that looks like this:

正如我所说，这并不完全是一个新策略；然而，赌注在于 Gemini 是如此有用——特别是如果你使用 Gmail、Google Calendar、Google Photos 等——以至于谷歌长期以来对网络服务和智能手机操作系统的整合实际上成为了一个转变的理由。这导致了一个看起来像这样的整合点：



An important implication of this approach is that by leaning into Android's breadth Google cannot depend too deeply — or really at all — on the underlying hardware. This, by extension, means total dependence on the cloud — Google's cloud, specifically. This is a good bet for Google, to be clear; their infrastructure is one of their biggest advantages in AI, and, as [I noted after last spring's Cloud Next keynote](#), this fits the company's nature:

这种方法的一个重要含义是，通过利用 Android 的广泛性，谷歌不能过于依赖——或者说根本不能依赖——底层硬件。这进一步意味着完全依赖于云——具体来说是谷歌的云。对此，谷歌的押注是明智的；他们的基础设施是他们在人工智能领域最大的优势之一，正如我在[去年春季的 Cloud Next 主题演讲](#)后提到的，这符合公司的本质：

Google is facing many of the same challenges after its decades long dominance of the open web: all of the products shown yesterday rely on a different business model than advertising, and to properly execute and deliver on them will require a cultural shift to supporting customers instead of tolerating them. What hasn't changed — because it is the company's nature, and thus cannot — is the reliance on scale and an overwhelming infrastructure advantage. That, more than anything, is what defines Google, and it was encouraging to see that so explicitly put forward as an advantage.

谷歌在其数十年的开放网络主导地位之后面临许多相同的挑战：昨天展示的所有产品都依赖于与广告不同的商业模式，而要正确执行和交付这些产品将需要文化上的转变，从容忍客户转向支持客户。没有改变的是——因为这是公司的本质，因此无法改变——对规模和压倒性基础设施优势的依赖。这一点，比任何其他因素更能定义谷歌，看到这一点被如此明确地提出作为优势令人鼓舞。

That keynote was about enterprise and Google Cloud, but it very much signaled what the company announced at that Android event I excerpted above; the extra ingredient for the latter was Google



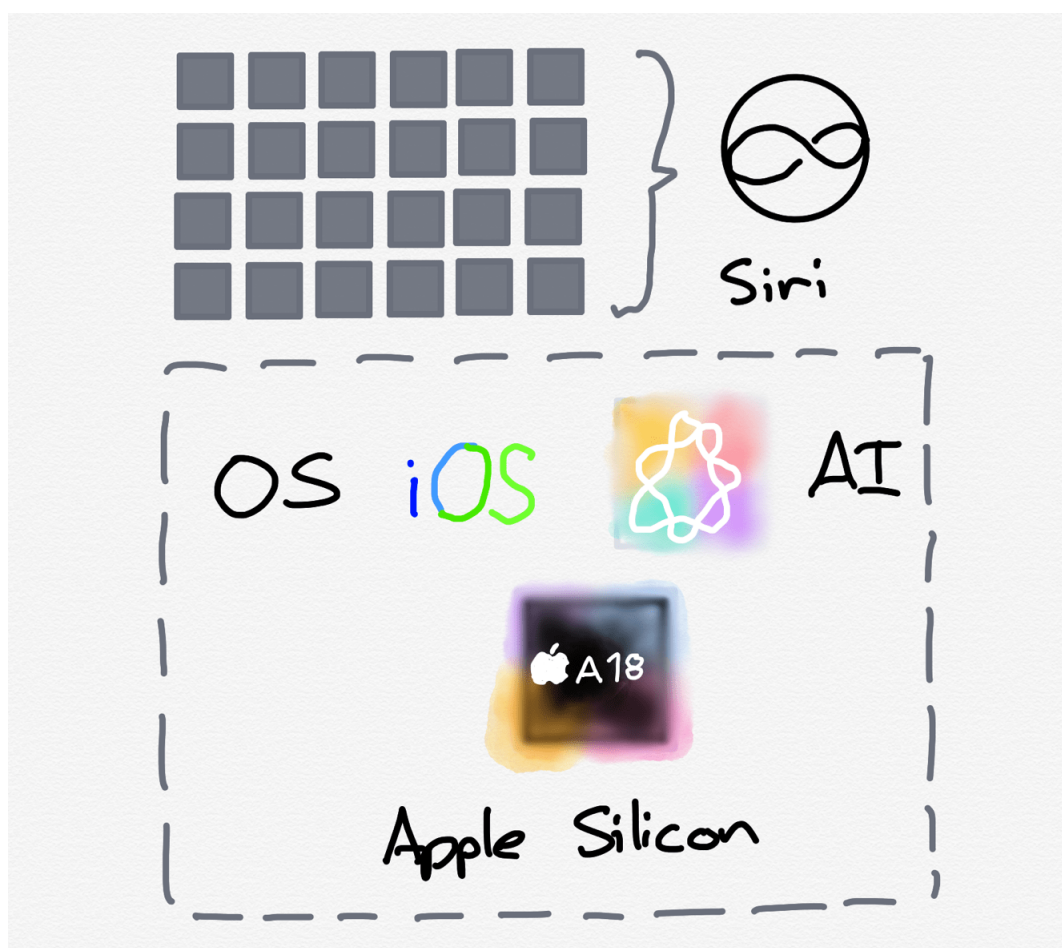
那场主题演讲是关于企业和 Google Cloud 的，但它非常明确地传达了我在上面摘录的 Android 活动中公司所宣布的内容；后者的额外成分是 Google 作为 AI 的交互层，这符合他们作为聚合者的传统。

Here's the question for Apple: is this really a game they want to play, competing with Google in an arena that Google is perfectly suited for? Yes, Apple has cloud services, and yes, they are serviceable and not an embarrassment like they used to be, but they're hardly the company's forte. And sure, the company can make better guarantees about hardware capability, but to what end? So that Apple can spend less on infrastructure by using weaker processors?

这是苹果面临的问题：他们真的想在一个谷歌完全适合的领域与谷歌竞争吗？是的，苹果有云服务，且这些服务可用，不再像以前那样令人尴尬，但这并不是公司的强项。当然，公司可以对硬件能力做出更好的保证，但这有什么意义呢？难道是为了让苹果通过使用较弱的处理器来减少基础设施支出吗？

Apple's point of integration has always been — and should always be — hardware and the operating system, and that's where AI should sit:

苹果的整合点一直是——并且应该始终是——硬件和操作系统，而人工智能应该在这里：



The operating system is not Siri; that's something that sits on top — otherwise it's a constraint on the opportunity space, just as much as an overt dependence on a cloud service might be. That constraint might make sense if the goal is to run on as many devices as possible, like Android does, but that's not Apple's model! So why is it trying to play that game? Its opportunity is to enable a plethora of 3rd-party apps.

操作系统不是 Siri；那是一个位于其之上的东西——否则它就像对机会空间的限制，就像对云服务的明显依赖一样。如果目标是尽可能多地运行在设备上，比如 Android 那样，这种限制可能是有意义的，但这不是苹果的模式！那么为什么它要尝试玩这个游戏？它的机会在于能够支持大量的第三方应用。

## 苹果的开发者的困扰

This was the point of yesterday's Article: the best way for Apple to take advantage of its point of integration and consistent high-end hardware capabilities is to enable developers to build compelling — and fully unrestricted — experiences using Apple's pre-loaded models. These experiences wouldn't have any marginal costs, because they are running locally; Apple could also rent out access to Private Cloud Compute, which would match up nicely with a subscription business model, which is great for Apple's Services revenue line. Still, the big differentiator and focus for the company should be AI on the edge.

这就是昨天文章的要点：苹果利用其整合点和一致的高端硬件能力的最佳方式是让开发者使用苹果预装的模型构建引人入胜且完全不受限制的体验。这些体验不会有任何边际成本，因为它们是在本地运行的；苹果还可以出租对私有云计算的访问，这与订阅商业模式非常契合，这对苹果的服务收入线非常有利。不过，公司最大的差异化和关注点应该是边缘人工智能。

And yet, while this strategy seems clear to me, I have serious questions as to whether Apple will ever go this route. I laid out the core reason why — a reason that also underlies Apple's contentious relationship with developers — at the very beginning of Stratechery. From July 2013's [Why Doesn't Apple Enable Sustainable Businesses on the App Store?](#):

然而，尽管这个策略对我来说似乎很明确，但我对苹果是否会走这条路有严重的疑问。我在《Stratechery》的开头阐明了核心原因——这个原因也构成了苹果与开发者之间争议关系的基础。来自 2013 年 7 月的[《为什么苹果不在 App Store 上支持可持续的商业模式？》](#)：

Last week I transcribed [significant portions of the Steve Jobs keynote](#) at Macworld Boston. In that keynote, he described how Apple was dependent on Adobe for many of its sales, and, more famously, introduces Apple's "partnership" with Microsoft.

上周我转录了[史蒂夫·乔布斯在波士顿 Macworld 大会上的重要演讲](#)。在那次演讲中，他描述了苹果在许多销售上依赖于 Adobe，并且更著名的是，介绍了苹果与微软的“合作关系”。

Jobs' closing speech, where he said that "We have to let go of this notion that for Apple to win Microsoft has to lose," is well-known and still cited; however, I think the full quote is more telling (emphasis mine):

乔布斯的闭幕演讲中，他说“我们必须放弃这种观点：苹果要赢，微软就必须输”，这一点众所周知，仍然被引用；然而，我认为完整的引用更具启发性（强调是我自己的）：

*You know, **where we are right now**, is, we're shepherding some of the greatest assets in the computer industry. And, **if we want to move forward and see Apple healthy and prospering again**, we have to let go of a few things here.*

**你知道，我们现在所处的地方是，我们正在管理计算机行业中一些最重要的资产。而且，如果我们想要向前发展，让苹果再次健康繁荣，我们必须放弃一些东西。**

*We have to let go of this notion that for Apple to win Microsoft has to lose. OK? We have to embrace a notion that for Apple to win Apple has to do a really good job, and if others are going to help us, that's great, cause **we need all the help we can get**. And if we screw up and we don't do a good job, it's not somebody else's fault. It's our fault. So, I think that's a very important*

我们必须放弃这种观念：为了让苹果赢，微软就必须输。明白了吗？我们必须接受这样一个观念：为了让苹果赢，苹果必须做得非常出色，如果其他人能帮助我们，那很好，因为**我们需要尽可能多的帮助**。如果我们搞砸了，做得不好，那不是别人的错。是我们的错。所以，我认为这是一个非常重要的观点。

*I think, if we want Microsoft Office on the Mac, we better treat the company that puts it out with a little bit of gratitude. We like their software.*

我认为，**如果我们想在 Mac 上使用 Microsoft Office**，我们最好对发布它的公司表示一点感激。我们喜欢他们的软件。

*So, the era of setting this up as a competition between Apple and Microsoft is over as far as I'm concerned. **This is about getting healthy**, and this is about Apple being able to make incredibly great contributions to the industry, to get healthy and prosper again.*

所以，在我看来，将这视为苹果与微软之间竞争的时代已经结束。**这关乎健康**，这关乎苹果能够为行业做出极大的贡献，以便重新获得健康和繁荣。

The emphasis brings home the point: Jobs' statement was completely driven by Apple's desperate state and the fact that Apple's potential users cared more about Photoshop and Office than they did the Mac. For Jobs especially, it must have been humiliating.

这种强调突出了一个要点：乔布斯的声明完全是由于苹果的绝望状态，以及苹果的潜在用户更关心 Photoshop 和 Office 而不是 Mac。对于乔布斯来说，这尤其是一个羞辱。

I had a unique vantage point into how Apple looks at this time in its history due to my time spent on the **Apple University team**, and something that struck me was the powerful impact Apple's near-death experience had on all those involved. That **Wired cover**, and the fact Apple lost nearly a billion dollars in 1996, came up unprompted again and again. For those that were there, it *still* fundamentally shapes how they view the world and how they make decisions.

我对苹果在其历史上这个时刻的看法有一个独特的视角，这要归功于我在**苹果大学团队**的经历，令我印象深刻的是，苹果的濒死经历对所有参与者产生了强大的影响。那本**《连线》封面**以及苹果在 1996 年损失近十亿美元的事实，屡次被提起。对于那些在场的人来说，这仍然根本上塑造了他们看待世界的方式和做出决策的方式。

To be clear, this has tremendous value: there is nothing like near-death **to realize** you have nothing to lose — a great recipe to avoiding disruption. In fact, one of my concerns for Apple is what will happen when all of the old guard is gone, leaving those who have only known success.

明确来说，这具有巨大的价值：没有什么比濒临死亡**更能让人意识到**你没有什么可失去的——这是避免颠覆的绝佳秘诀。事实上，我对苹果的一个担忧是，当所有的老一辈都离开后，会发生什么，留下的只有那些只知道成功的人。

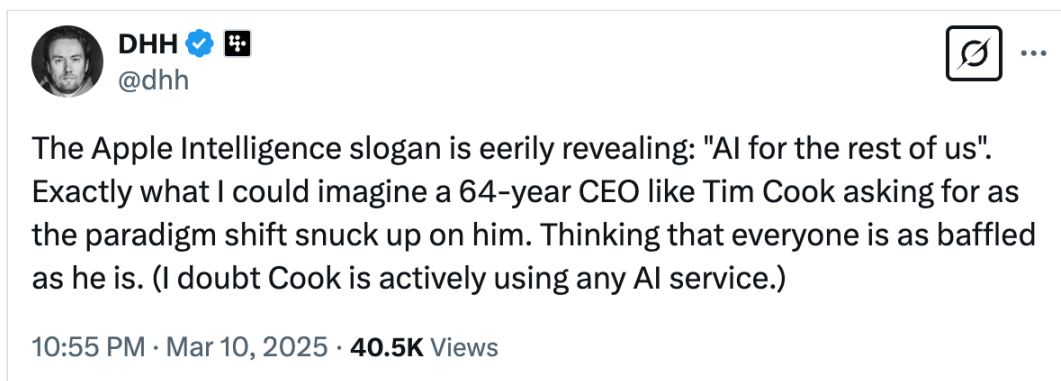
But there have been downsides to this paranoia. Apple's inefficient use of its cash is the most famous, but I think developer hostility is an aftereffect as well. I would go so far as to argue that that Boston keynote was at the root of Jobs' opposition to *any* 3rd-party apps on the iPhone, much less App Store policies that enable sustainable businesses. Never again would Apple be held hostage to an app that was bigger than Apple.

但这种偏执也带来了负面影响。苹果对现金的低效使用是最著名的，但我认为开发者的敌意也是一种后果。我甚至可以说，波士顿的主题演讲是乔布斯反对**任何第三方应用程序在 iPhone 上存在**



Last fall, after the iPhones 16 launch, I titled my Article [Boomer Apple](#); that was mostly in reference to the boringness of the shift to services, along with the observation that an increasingly amount of keynote time seemed to be spent on (very worthwhile!) features that mostly appealed people in their 50s and 60s. People like Apple's executive team. Perhaps that is why this tweet from David Heinemeier Hansson jumped out at me:

去年秋天，在 iPhone 16 发布后，我将我的文章标题为[Boomer Apple](#)；这主要是指向服务转型的无聊，以及越来越多的主题演讲时间似乎花在了（非常值得！）主要吸引 50 多岁和 60 多岁人群的功能上。像苹果的高管团队那样的人。也许这就是为什么大卫·海涅迈尔·汉森这条推文让我印象深刻的原因：



I explained above why Apple's old guard — particularly the most senior members who remember the 90s — are an obstacle to unleashing developers. Implicit in "old guard", however, is just plain "old", and AI is very much a young person's game. It requires such a different way of thinking and approach to product development, and it's reasonable to wonder if Apple, at least at the leadership level, has it in them.

我在上面解释了为什么苹果的老一辈——特别是那些记得 90 年代的高级成员——是释放开发者的障碍。然而，“老一辈”隐含的就是单纯的“老”，而人工智能确实是一个年轻人的游戏。它需要一种截然不同的思维方式和产品开发方法，合理地怀疑苹果，至少在领导层面上，是否具备这种能力。

To that end, I am somewhat surprised — and disappointed — that last week's news about Siri's delay did not include any news about executive retirements; there was news [in January](#) about an executive shuffle in the AI team, but this failure strikes me as one that is significant enough to demand accountability.

为此，我有些惊讶——也有些失望——上周关于 Siri 延迟的消息中没有提到任何高管退休的消息；在[一月份](#)有关于 AI 团队高管调整的消息，但我认为这次的失误足够重大，应该追究责任。

What I think is more important, however, is that Apple revisit all of its assumptions from the last 15 years, even though — or because — they were the most successful in the company's history. [The iPhone was a perfect product](#), so perfect that Apple could indulge its anti-developer sentiment while building a moat with 3rd-party apps. That created a foundation for Apple to have a differentiated offering in AI, one that allows them to be an Aggregator for foundation models, letting others make massive capital expenditures on their behalf, even as they dominate AI on the edge. But to truly seize that advantage the company needs to go back to being a platform, what they were when they were young. Can they remember how?

然而，我认为更重要的是，苹果需要重新审视过去 15 年的所有假设，尽管——或者正因为——这些假设是公司历史上最成功的。[iPhone 是一个完美的产品](#)，完美到苹果可以在构建与第三方应用的护城河时放纵其反开发者的情绪。这为苹果在人工智能领域提供了一个差异化的产品基础，使他们能够成为