

Inside Dropbox's Identity Overhaul

 wired.com/2017/01/inside-dropboxs-identity-overhaul/

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January 30, 2017



Dropbox became a darling company of the cloud computing startup wave by keeping users' files in sync. Elegant, efficient, and reliable, its software now holds 500 million users' digital lives together across time, space, and every platform and device. But what does "in sync" actually mean? For files, the question is easy to answer: When something changes over here, you want those changes to be reflected everywhere, speedily and invisibly. Now, though, Dropbox is tackling something that's harder to define: Instead of merely syncing files, it's promising to sync *people* — to keep members of workplace teams on the same page. Literally

That's the promise of Paper, the audacious new product that Dropbox launches today, after its appearance in open beta last August. It's part of a broader set of new features and upgrades that, the company's leaders promise, will lay the foundation for a new, radically simplified form of digital collaboration.

For Dropbox, this long-awaited expansion of its vision couldn't have come soon enough. The company always had an upstart vibe, but today it's a decade-old firm with about 1,600 employees, maze-like new headquarters near San Francisco's South Park, and — it announced last summer — positive cash flow. Three quarters of its users are outside the US, and there are 3.3 billion "persistent sharing relationships" — files or folders that connect users.

But Dropbox has also had some recent rough patches. A year ago, it shut down a photo sharing project called Carousel and an email app it had acquired called Mailbox. Not long after, two of its investors questioned the company's heady \$10 billion valuation and wrote down the value of their investment. That was about the same time the new headquarters opened and employees found, nestled at the heart of the labyrinth, a costly five-foot-tall chrome statue of a panda (the company mascot). To critics of tech company excess, the panda quickly became a symbol of startup folly; Dropbox kept it around, but posted an apologetic note nearby.

For Drew Houston, Dropbox's cofounder and CEO, Paper and the other new initiatives are also the foundation for a reinvention of his company. In its decade of life, cloud storage—even done as slickly as Dropbox does it—has come to be seen widely as a commodity service. With Paper and the other new team-oriented changes, Houston hopes people will stop thinking of Dropbox as just “a home for your stuff.”

It will be more like a group home for you and everyone you work with. And it will be a crowded one, because everyone's invited to share. And sync.



Dropbox thinks its new focus on the workplace is already paying off. At a press event in San Francisco this morning, Houston announced that the company has now topped \$1 billion in recurring annual revenue; he claims it's the fastest software-as-a-service firm to climb to that milestone as quickly.

But Dropbox's master plan has remained opaque until now. So last week I spent some time with Dropbox engineers and managers, trying to wrap my head around what is actually transformative about Paper and the company's other recent new initiatives. Those include Smart Sync, a nifty extension of file syncing that lets you work with remote files as if they were a part of your desktop filesystem, and team-scale Dropboxes that remodel the personal info-store service into a replacement for the old-school departmental file server.

Put it all together and you have, Houston says, a unique effort to unite the two realms of computing between which we hop back and forth today: “File world,” the drives and directories where our work products and documents live, and “cloud world,” the networked environment where we communicate and collaborate.

This plan is kind of abstract. It lacks the instant wow factor of tech wonders like voice-enabled digital valets or self-driving cars. Getting business software to take its next evolutionary leap turns out to be a tough problem, and the solutions remain embryonic. That's why, at work, we're all still using programs that haven't fundamentally changed in three decades, even as the rest of our lives are being kicked into Tomorrowland overdrive.

Dropbox might be the right company at the right time to change that. When the company began as a Y Combinator startup a decade ago, it wasn't making business software at all. Houston and his co-founder, Arash Ferdowsi, set out to render thumb drives obsolete and make cloud storage work for everyday people. But as engineers and other early adopters embraced Dropbox, they started smuggling it into the workplace. This didn't always make security-minded IT managers happy, but over time Dropbox negotiated a truce with them and starting selling business accounts.

Today Dropbox says it's being used in 8 million businesses, and more than 200,000 of those pay for the service, getting administrative controls, more space, and, now, collaboration tools. Despite that success, Dropbox remains something of an insurgent: Its tools are less often imposed by CIOs won over by a sales pitch, and more commonly adopted bottom-up, championed by users who love them.

Dropbox's gear-shift began in earnest in 2014 when the company realized just how far the technology we use in the office has lagged behind what we play with at home.

"There are all these crazy disparities," says Aditya Agarwal, Dropbox's CTO, who left his job as Facebook's first engineering manager in 2010 and has been helping drive Dropbox's new focus on teams since the company acquired his collaboration-focused startup in 2012. "I have the ability to search through the entirety of human knowledge in any language on my phone in one second right now. But if you ask me to search through all my company's information, knowledge, data, nobody's solved that problem. The data's all over the place." Facebook and other social networks keep us in sync with our personal connections, but finding out what's happening with other people at work isn't so simple. "Companies invent all these crazy mechanisms to solve that in pretty painful ways," Agarwal says. Dropbox's new projects won't vault us instantaneously into a future where workplace software is as streamlined, modern, and machine-learning-driven as our after-hours apps—but that's where the company wants to aim long-term.

Dropbox CTO Aditya Agarwal

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Why does at-work computing lag? The business software market is crowded because it's lucrative — and so its winners have always tried to lock customers in. That protects revenue streams but slows change. Microsoft Office emerged in an era when you created documents to print them out. Google Docs transplanted Office's functions to the web without fundamentally changing them. Dropbox's developers and designers asked: What if you ditched the whole office suite and started from scratch?

At first blush, Dropbox's answer to this seems underwhelming. At its launch state it looks like a simplified browser-based document editor with comments — as if Microsoft Office or Google Docs got reincarnated as the love-child of Medium and Slack. It's sleek, fast, and easy to use. But it does a lot less than its more mature competition, and when you first look at it, you may scratch your head and wonder what the big deal is. That was my reaction last year when I first read about its earliest versions.

Drew Houston nods when I confess this to him. "A lot of transformative improvements start out looking like toys," he says. "They're pretty quickly dismissed. That's the nature of low-end disruption. Maybe it's cheaper and simpler — but it's worse on these dimensions that are important today. You know: iPod? Limited disk space, doesn't have an FM radio. Twitter? It's what's for breakfast. So people miss what is actually transformative."

Houston sits across from me in one of Dropbox's myriad conference rooms, all of which are dubbed with in-joke monikers like "Low Hanging Fruit" and "Attorney-Client Privilege." He's affable and unassuming: If he popped his head into your meeting, you'd think he was just another hoodied developer. Dropbox's office, by contrast, is flashily designed and full of post-corporate sass. Nobody gets a private office, but you can work on the garden roof, or in the ground-floor coffeehouse that roasts its own beans, or in either of two alternative quiet rooms — one a bright, wood-accented library, and the other ("Deep Focus") a futuristic black womb.

As I got to understand the release version of Paper more, I began to see what Houston meant with his talk of stealth transformation. Paper's powers lie under a veil of simplicity. When you open a new Paper file, you face a mostly blank slate: The program doesn't make you choose whether to create a text document, a spreadsheet, or a presentation. The top of the screen isn't smothered by formatting icons and toolboxes; those just show up as needed, Medium-style. As other people pitch in to work on the file, Paper shows you who they are — and who's working right now.

A sample page in Paper Courtesy of Dropbox

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Paper provides a fascinating hybrid of text document and cloud workspace. It's a kind of context generator: You use it to knit together disparate fragments of information into something shareable and lasting. You can embed almost anything, from web images and YouTube videos to Google Docs and Word files — just select a file or drop a URL in, and it works. (Bonus: Embedded files, unlike email attachments, will stay up-to-date as people edit the original.)

You can write text connecting all these items you're embedding. Your teammates can drop in comments and feedback. Any document can flip into a presentation mode that parcels it out in slide-size chunks. There are simple tools for assigning tasks and setting due dates, so Paper works for lightweight project management. It's also got rudimentary table capabilities — but if you need an industrial-strength spreadsheet, you'll probably end up embedding one from Excel or Google.

That doesn't bother anyone at Dropbox. "We know that 100 percent of our customers are going to be either an Office 365 customer or a Google Apps customer," Houston says. "No one's going to stop using Excel because they use Paper."

But Dropbox does think Paper could become a sort of universal glue that connects teammates working together on updating a spreadsheet, designing a web page, reviewing code, or editing a press release. Once in place, it will save you from having to be “an archaeologist,” in Houston’s phrase, putting an end to excavations of long email threads and chats, treasure hunts for the latest version of a file, and reconstructions of who said what. In the longer term, Dropbox can unleash machine learning code on the Paper data and see how much further it can accelerate and automate all this information cultivation.

Of course, Slack and similar messaging platforms aim to keep teams on a similar track, too, and plenty of businesses swear by them. Wasn’t chat going to be the collaboration tool of the future?

Agarwal says the jury’s still out on whether, as he puts it, “everything is going to be keyed off a unit of communication, or communication is going to be keyed off some core unit of content.” All of these tools are looking for the perfect balance point between real-time communication and long-term knowledge-sharing. You can chat all you want, and of course you will, but sooner or later you actually have to do your work, whatever it may be.

Dropbox’s design team

Paper envisions groups creating documents with cumulative value — how-tos, FAQs, project histories, meeting notes, and brainstorming. That dream has eluded software makers as long as we’ve been networked, since the days of Lotus Notes and “intranets.” The golden age of collaboration never seems to dawn in the office; the tools have never made it easy enough to get people to share information in the first place, to curate it and keep it up to date, and to find it later.

Also, there’s the longstanding geeks vs. suits problem. In many organizations, Dropbox included, engineers and product people have gravitated toward putting all their notes and documentation on wikis — those venerable programs (Wikipedia is built on one) that let users easily build a link-heavy website — because they’re ad hoc and easy to start. But non-engineers have a hard time with them. Meanwhile, businesspeople are typically more comfortable working in Word and Excel and Sharepoint — but technical people often disdain them for their overhead and rigidity.

Paper may have found a “sweet spot” that bridges this divide, according to Rob Baesman, Dropbox’s senior director of product management: “It’s an everyman tool that wikis could never be, yet it’s easy to get started with, in the way wikis are good at,” he says. That’s what users found at Invision, an early tester of Dropbox’s new tools. Like an increasing number of firms today, Invision, which makes online sharing tools for product designers, has no main office — everyone is “remote.” It adopted Paper in beta to speed up collaboration, and Invision engineering manager Ryan Scheuermann says it’s fast, easy to learn, and eliminates meetings, which makes everyone happy. And engineers get the shortcuts they

crave, like Markdown (a set of text-formatting shortcuts popular among the technical set) and smooth handling of code snippets (formatting chunks of program code to be readable when they're dropped between English paragraphs).

Central to Dropbox's new team-centric approach is the notion that all of your group's files and shared documents should be easily within view and within reach. If you have to ask permission, log on to a fileserver, or wonder who's got the latest version of something, you're going to hate working together.

That's where Smart Sync comes in. It routes around these problems by making all the files in your group Dropbox, no matter how gigantic it gets, accessible through your computer's file-system interface. It doesn't matter if you don't have enough space on your local drive. The upstream files look like any other item in your Dropbox, but a little cloud icon indicates that they're "on-demand" files: click on one and it will quickly download and open, as if it were there on your disk the whole time.

Ben Newhouse, who leads the engineering team at Dropbox that built Smart Sync, got the idea when he joined the company in 2014 and started working on a Macbook Air. It had a measly 128-gigabyte solid-state drive that couldn't hold his Dropbox files. At first, Newhouse thought with some alarm that if he wanted to create desktop shortcuts for all those remote Dropbox files, he'd have to write a whole new file system from scratch — a task to make any sane engineer quail. Then he figured out he could borrow some less onerous tricks from the world of antivirus tools. By the end of a summer hack week, he had the core of the thing up and running.

Dropbox engineering lead Ben Newhouse

Project Infinite, later renamed Smart Sync, was born, and since then Newhouse and his team have smoothed the rough edges, made sure it scales and works reliably cross-platform, and tackled odd problems. Here is a particularly vexing one: Once your local drive is full, when you want to bring in another new file, Smart Sync has to take something off the disk. (The engineers were calling this "eviction," Newhouse recalls, until they realized the word might raise hackles.) Should the software nag the user to decide? That's annoying! Maybe it should pick which file to kick off the island by itself? As of last week, Newhouse's team was still struggling with that one.

Smart Sync is very much in the spirit of the original Dropbox: It lets users keep their old habits and skills while breaking down boundaries between local and network, what's "here" and what's "in the cloud." It may not *feel* like a revolution. But it does make you want to start using it right now.

Can Dropbox's tools for syncing people gain traction? That will depend not only on the appeal of the software, but also on how Dropbox the company fares in a crowded field. Everyone in the software-as-a-service business today — from Microsoft on down to that startup someone is launching as I write this — promises to turbocharge collaboration. Facebook's new Workplace is getting into that act, too.

Box, Dropbox's perennial rival, has targeted the enterprise market more single-mindedly for a decade, and its Box Notes delivers at least some of Paper's features. It's more like a descendant of Evernote, and at this stage it's not quite as flexible as Paper, or as minimalist —but Box's big Fortune 500 clients, like GE, Coca-Cola, and Procter & Gamble, get it in the Box package. "There's enough market for all of us to go after," Box CEO Aaron Levie says. "It's not a zero-sum dynamic."

Rob Baesman and Kavitha Radhakrishnan

Whether Dropbox's new office focus catches on is a pressing question for the firm, given that everyone in Silicon Valley assumes a Dropbox initial public offering is imminent. In fact, it's easy to take a cynical view of Dropbox's move into the business-teams territory as pure IPO grooming, a naked ploy to court investors by making a big move into a new business. Houston doesn't flinch when I ask him about that. "We don't need cash," Houston says. (Indeed, last summer the company announced positive cash flow.) "We're certainly charting that path, but it's nice to be able to do it on our own timeline." He says that what matters most to him is that people — investors, sure, but even more importantly, customers — understand what Dropbox is really up to. The old Dropbox was storage. The new one? "Creating millions of great teams."

Great tools are just one ingredient of great teams. It remains to be seen how much new spin Paper, and whatever it evolves into, can put on the old dance of human collaboration. But one thing about Dropbox's effort stood out for me: Although the half-dozen managers and execs I spoke to there were all straining a bit to bring the elusive vision of the new Dropbox into sharper relief, they presented a remarkably united front and consistent picture.

The secret? Kavitha Radhakrishnan, Paper's product manager, told me that Dropbox used eight Paper documents, total, to plan the whole product launch. In the middle of the last-lap scramble before the event, everyone was noticeably — as promised! — in sync.

