

# Creating the Windows 8 user experience

Steven Sinofsky | [2012-05-18T12:30:00+00:00](#)

*This blog often focuses on the bits and features and less on the “philosophy” or “context” of the product. Given the level of brand new innovations in Windows 8, however, we think it is worth putting Windows 8 in the context in which we approached the design. As with any [significant change](#) to a [broadly used product](#), Windows 8 has generated quite a bit of discussion. With millions of people using the Consumer Preview for their daily work, we’ve seen just as many points of view expressed. Many people—from [David Pogue of the New York Times](#) to [Mat Honan from Gizmodo](#) and many more—have been quite positive, and others less so, most notably in the comments on this blog, where we’ve seen the rich dialog we’d hoped for. Some have asked about design choices we’ve made in the product and the evolution of Windows or suitability of the design to different people. Some bloggers believe it is [critical to further separate the traditional desktop from Metro style elements](#). Other people believe passionately that it is [important to make the desktop more like the Metro style interface](#). There are as many opinions as there are folks who have tried out the [Consumer Preview](#). Designing a new release of a product already used by a billion people in a billion different ways is, as we say, like ordering pizza for a billion people. Doing so out in the open encourages this dialog, and we embrace and value it. **Jensen Harris, Director of Program Management for our User Experience team, authored this post.***

—Steven

At the **D: All Things Digital** conference in June 2011, we demonstrated for the first time [the new user interface](#) that we [developed for Windows 8](#). This new UI is fast and fluid to use, and optimized for mobile form factors such as laptops, tablets, and convertibles, where people spend the vast majority of their time today. Windows 8 works equally well with mouse, keyboard, or your fingers, and has the best pen support of any OS. It supports multiple displays and the widest array of configurations and form factors of any OS. On top of all that, Windows 8 introduces a new kind of app, which we codenamed “Metro style” following the design language that has evolved going back to Windows Media Center and the new Windows Phone. These apps are immersive, full-screen, beautiful, and optimized for the ways that people commonly use devices today.

I thought it would be useful to take a step back and describe a little bit of the background of how the Windows 8 user interface was designed, and discuss some of the decisions we’ve made and the goals of this new experience in more detail.

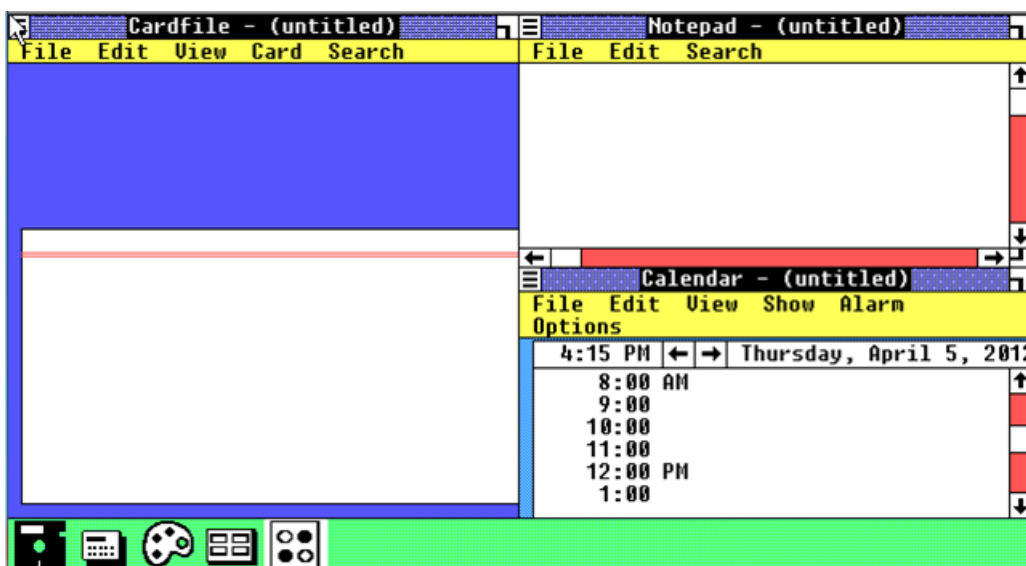
## A brief history of the Windows user interface

The user interface of Windows has evolved and been transformed over the course of its entire 27-year history. Although we think about certain aspects of the Windows UI as being static or constant, the reality is that the interface is always changing to keep up with the way people use PCs. It is amazing to reflect back on the history of the Windows UI, and to see the level of dramatic change that has transpired over time.

Since Windows 8 marks a significant evolution of the user experience, I will focus on the releases where the user interface of Windows changed most significantly, and some of the initial perception surrounding those shifts. If you are interested, [a full history of Windows](#) is available to read on the Microsoft website.

### Windows 1

Windows 1 was released in 1985, and it was designed for drastically different scenarios than what people use PCs for today.



The first version of Windows was a rough graphical shell around DOS, intended primarily to be used with the keyboard. A mouse was strictly optional and very few PCs had one.

In fact, the mouse was a bit of a curiosity at the time, perceived by many experienced users as inefficient, cumbersome, un-ergonomic, and hard to learn how to use. The mouse was certainly exotic. Do you roll it on the screen? Do you pick it up and [talk into it](#)?

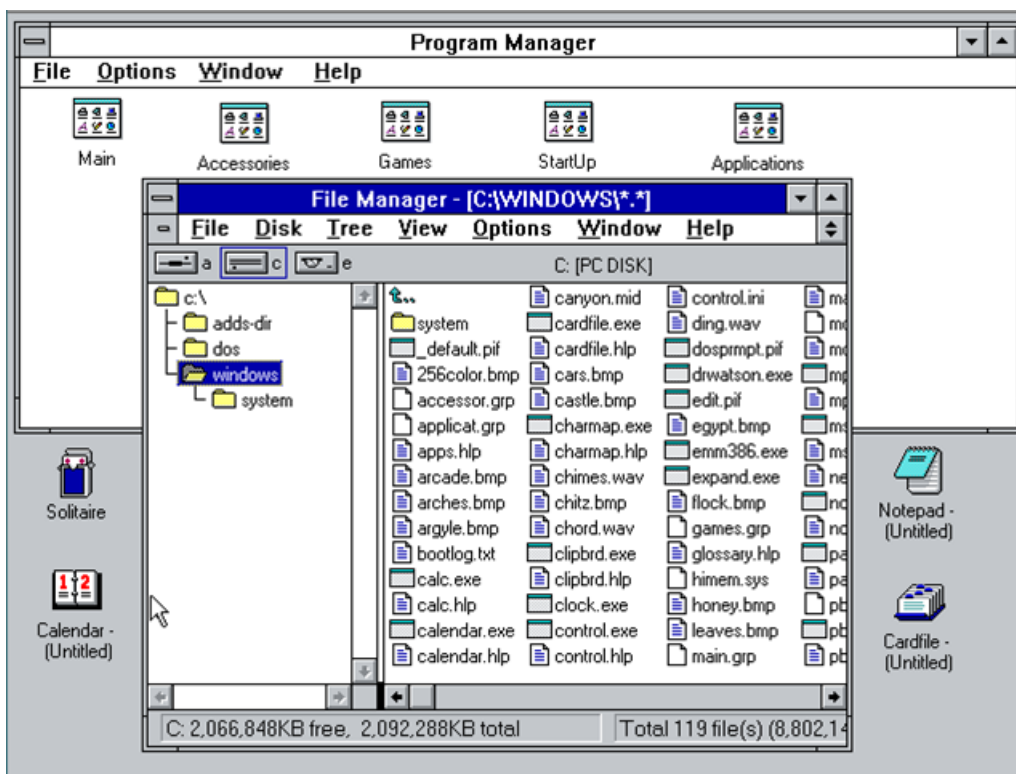
Here are a couple of published expert opinions from early 1980s print publications about whether the mouse would catch on:

- “Mice are nice ideas, but of dubious value for business users” (George Vinall, PC Week, April 24, 1984)
- “There is no evidence that people want to use these things.” (John C. Dvorak, San Francisco Examiner, February 19, 1984)
- “I was having lots of fun, but in the back of my corporate mind, I couldn't help but think about productivity.” (George Vinall, PC Week, April 24, 1984)
- “Does the mouse make the computer more accessible, more friendly, to certain target audiences such as executives? The answer is no.” (Computerworld, October 31, 1983)
- “There is no possibility that this device will feel more comfortable to the executive than the keyboard. Because of its ‘rollability,’ the mouse has the aura of a gimmick...” (Computerworld, October 31, 1983)
- “The mouse and its friends are merely diversions in this process. What sounds revolutionary does not necessarily help anyone with anything, and therein lies the true test of commercial longevity.” (David A. Kay, Datamation, October 1983)

So, as you can see, the mouse was considered gimmicky, unnecessary, and not useful for mainstream use. On the other hand, [some people are now asserting that the mouse is dead](#).

### Windows 3 and 3.1

The first commercially successful version of Windows was Windows 3, released in 1990. It featured a totally new interface, centered on a new shell called *Program Manager* for launching, arranging, and switching programs.



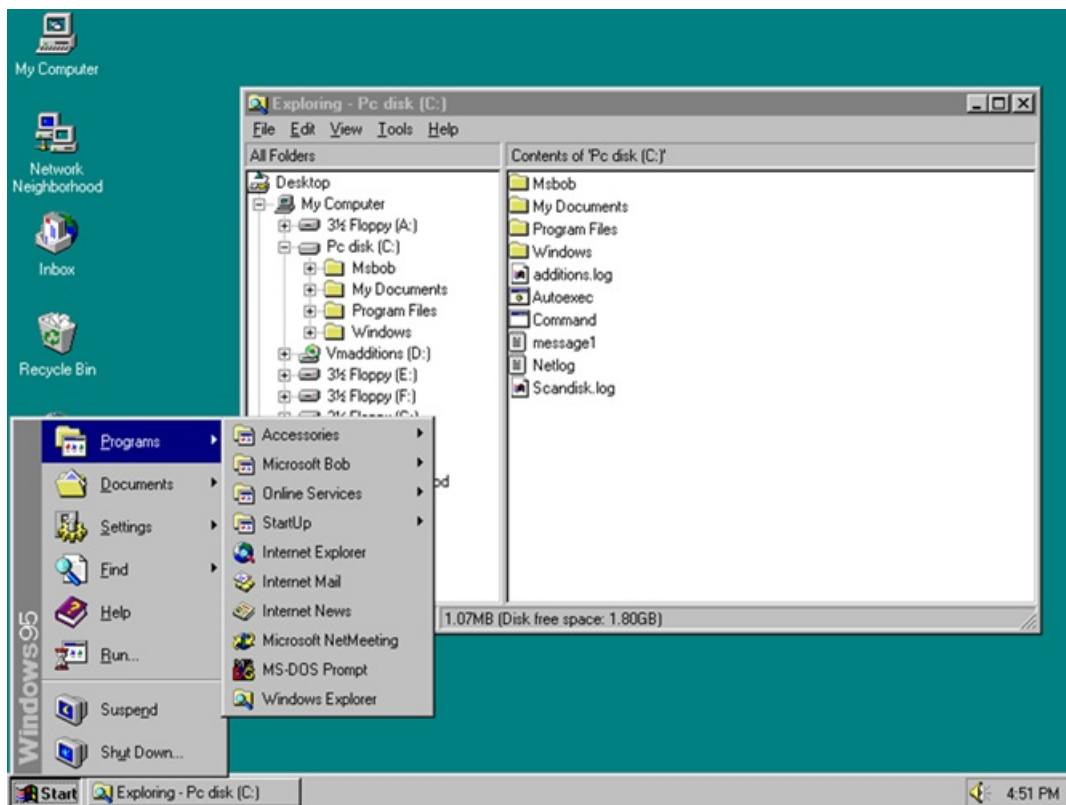
File Manager was the most important new program in Windows 3, used for managing files and drives. This upgrade bet big for the first time on most users having a mouse, and knowing how to use it to click on the colorful, large (for the time) 32x32 icons. Many reviews were critical of the release because to use it effectively required one of those off-criticized mice.

It is worth noting in the screenshot above that File Manager is being used to browse the files in the OS itself—something that was commonplace at the time, but now the modern equivalent of looking under the hood to repair an electronic fuel-injected car.

You could not put links to programs or files on the “desktop” in Windows 3. The area behind the floating windows was where programs went when you minimized them. Because getting to these minimized apps often required moving a bunch of windows out of the way first, the Alt+Tab keyboard shortcut became a very popular way to switch between running programs.

### Windows 95

Windows 95, released a few years later in August of 1995, included a substantially reinvented user experience. Many of the constructs that are still present in Windows 7 were introduced in this version—the Start menu, taskbar, Explorer, and the desktop—but in very different forms.



Although we think about these user interface elements as familiar today, at the time, they were radically different from how anyone had used a PC before. The Start button was so undiscoverable that, despite having the word Start right on it, bouncing “<-- Click here to begin” text had to be added to the taskbar after early test releases so that people could figure out how to get started using the programs on their PC.

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Of course, once people figured out the “trick” of the Start button, it stuck with them, and then they were good to use it forever more. And of course, we were able to remove the “Click here to begin” text from subsequent versions.

At the time, PCs were still rather mysterious and the vast majority of homes were yet to have their first PC. Actions that we take for granted today, such as double-clicking and right-clicking, were to many users unknown—yet used extensively in the Windows 95 user interface. These actions proved problematic for many people to discover and master. Here is an historic video of a person in our usability labs trying an early build of Windows 95 which shows an example of the kind of problems many people had:

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The Windows 95 user interface, designed in 1993, was forward-looking, and drastically simplified the common tasks of the time. Yet, a vocal subset of users continued to criticize it for years, preferring instead the comfort of what they were familiar with: Windows 3.1. Ed Bott from ZDNet [dug up some humorous posts highlighting the frustration some users were having](#) making the transition to Windows 95.

So, while the building blocks of today’s familiar Windows experience were designed in 1993, the world of 2012 is very different. In 1993, the web was still new to everyone, and most Windows 95 users had not tried it yet. The included media player could only play .wav files. Online connectivity was not commonplace, and if it was present at all, it was usually through a service such as AOL, which used a modem to connect to proprietary content and a closed intra-service messaging system.

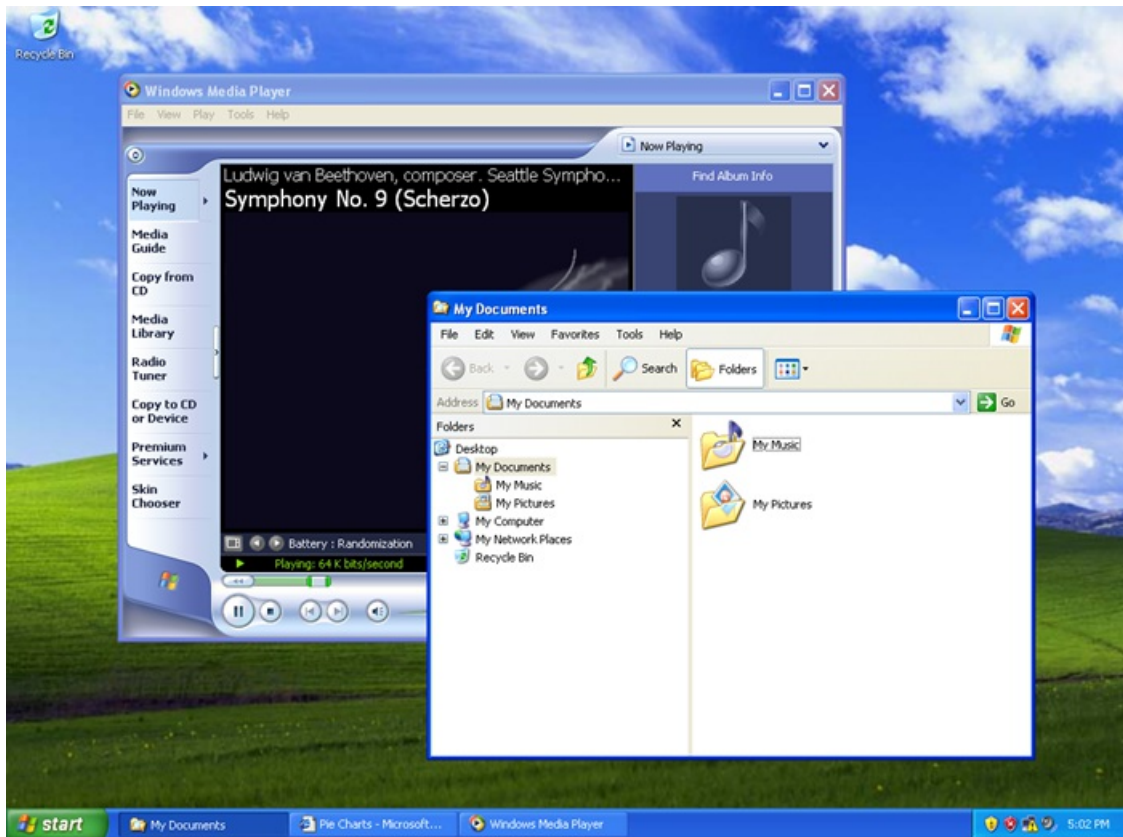
Windows 95 prominently featured a fax service and a terminal client/phone dialer. It did not include any support for commonplace devices such as digital cameras or portable mp3 players, since neither even existed as a consumer device in 1993. The first ever mobile phone with PDA capabilities, the [IBM Simon](#), was introduced around this time. It weighed almost 1.5 pounds, ran DOS, and the [only app ever designed for it sold only two copies](#). This was a very, very different world than the one we live in today.

And yet, the Windows 95 UI was designed in and for this world; the Start menu, the taskbar, the desktop, Explorer, and all of the rest of today’s familiar Windows UI was born in this time. A world in which you spent most of your time disconnected... typing in a word processor and manipulating files on your computer. A world in which the idea of not [starting Windows by typing “win” at the DOS prompt](#) seemed strange and almost unreal (and even the subject of many debates.)

From this distant time in the past, today’s familiar Windows user interface was born.

## Windows XP

Windows XP was released to PC manufacturers on August 24, 2001. It represented another important evolution in the Windows user interface.



By 2001, people were using their PCs more every day. Typing and managing files, which doesn't require the web, remained a critical percentage of the time people spent using a PC. Yet collecting and consuming information and media—especially music, photos, and videos—was on the verge of becoming mainstream. (Even then, early digital camera sales were still [just one quarter of film camera sales](#), and would not eclipse them for another three years.) People were spending more time on the PC web browsing and doing mail, in addition to the document-focused productivity scenarios around which Windows 95 was developed.

Although you still invoked the Windows XP Start menu by clicking the word Start in the lower-left corner, the Start menu itself changed considerably. The familiar hierarchical programs list from all versions of Windows since 95, rooted in the old Program Manager, was demoted under an “All Programs” link. Mail, web browsing, pictures, and music were brought to the top level.





Although Windows XP eventually became a major success, some people at the time were frustrated with the changes to the user interface. They found the Windows XP experience [to be garish](#), and users [inquired about how to “downgrade” to previous versions](#).

## Windows Vista

In 2006, Windows Vista substantially changed the visual appearance of Windows, introducing the Aero visual style. Aero gave the appearance of highly-rendered glass, light sources, reflections, and other graphically complex textures in the title bars, taskbar, and other system surfaces. These stylistic elements represented the design sensibilities of the time, reflecting the capabilities of the brand-new digital tools used to create and render them. This style of simulating faux-realistic materials (such as glass or aluminum) on the screen looks dated and cheesy now, but at the time, it was very much en vogue.



Aero was designed to help people focus less on the window chrome itself, and more on the content within the window. It draws the eye away from the title bar and window frames, and towards what is valuable and what an app is about.

And of course, the Start menu changed again, most notably by making it possible to press the [Windows key](#) (introduced in Windows 95) and then just start typing to search from anywhere in Windows. (This welcome innovation is one [we’ve kept in Windows 8](#), expanding it to search even within apps.)

Of course, as with every change along the way, [some people](#) expressed reservations [about the changes](#).

## Windows 7

Windows 7 was released in the fall of 2009, and a number of the key aspects of the UI were significantly transformed. While many of these

changes centered on an overhaul of the taskbar, significant modifications were also made to the Start menu, [windowing](#), and to [the logical organization of files on the PC](#).



Notably, [launching and switching between programs were brought together in the new taskbar](#). Icons in the taskbar were made bigger and more touchable. The Start menu was changed to focus on launching only the programs you use less frequently, as no program can be pinned to both the taskbar and the Start menu. This marked the start of a transition where we were looking to remove the archaic distinction between starting a program for the first time and returning to a program that was already running. It is interesting to consider how odd it is that we trained ourselves to look one place for a program the first time it is running, and a different place once it is already running.

Windows 7 also was the first mainstream non-phone OS to [introduce multitouch support into the base OS](#). Although tablets on other platforms have followed suit, Windows 7 was the first shipping OS to embrace multitouch in the platform. Along the way, we learned a great deal about the limitations of trying to use touch to navigate Windows when so much of the existing interface, and virtually all of the existing programs, were specifically designed to be used with mouse and keyboard.

Although [some people had critical reactions](#) and [demanded changes](#) to the user interface, Windows 7 [quickly became the most-used OS in the world](#).

## Trends that influenced the design of Windows 8

As we started planning the user experience of Windows 8 in mid-2009, just around the time of Windows 7 RTM, we looked around and took note of some of the trends playing out around us.

This was a pre-iPad world, a world before the recent proliferation of new form factors and device types. And [although more than 93% of PCs run some version of Windows](#) today, it was clear even then that the world we lived in and people's expectations of computing devices were rapidly changing.

Here are a few of the trends we noted that influenced the design of the Windows 8 user experience and features:

### 1. Connected all the time.

Connectivity is becoming ubiquitous. While today's file-centric Windows user interface was designed around assumptions of optional, limited, and sporadic connectivity, today, nearly everything people love to do on their PCs assumes they're connected to the Internet. Wi-Fi is assumed in more and more public locations, and an increasing number of PCs also include the ability to connect to mobile broadband networks as well. Where connectivity was once the exception, it is now the rule.

### 2. People, not files, are the center of activity.

There has been a marked change in the kinds of activities people spend time doing on the PC. In balance to "traditional" PC activities such as writing and creating, people are increasingly reading and socializing, keeping up with people and their pictures and their thoughts, and communicating with them in short, frequent bursts. Life online is moving faster and faster, and people are progressively using their PCs to keep up with and participate in that. And much of this activity and excitement is happening inside the web browser, in experiences built using HTML and other web technologies.

### 3. The rise of mobile PCs over desktop PCs.

The kinds of PCs people are buying are rapidly moving towards mobile form factors like laptops and tablets, and away from traditional desktops. While powerful desktops will remain the form factor of choice for people who want to squeeze every ounce of performance out of a highly modular and extensible PC (for example video editors, financial analysts, scientists, gamers, PC enthusiasts...), most people want to have light, portable PCs.

In 2009, desktops were 44% of the worldwide market and laptops were 56%. Just 3 years later, over 61% of the PCs sold are laptops and the trend is accelerating—this is globally, measuring all Windows PCs sold. Among consumers in the United States buying a PC this year, more than 76% will purchase laptops—the absolute number of all US desktops sold will be fewer than the

number of tablets in 2012! That is a fairly stunning change in the role of different form factors. Even in businesses, laptops are now purchased more than half the time.

Videos of the recent [Windows 8 Consumer Preview event we hosted in Barcelona in February](#) were shot, produced, edited, and controlled using only laptops. Many of these were very powerful laptops with secondary monitors plugged in for extra screen space, but even a few years ago we would have hauled around a truckload of desktop PCs for the event. Just because a PC is portable, light, and thin does not mean that it lacks the power or capability to do heavy-duty professional work.

#### **4. Content is on the PC and in the cloud.**

Following from ubiquitous connectivity and the popularity of laptops is the fact that people's content now spans the PC and cloud services. This includes not just purpose-built storage services like [SkyDrive](#), but also photos in Facebook and Flickr, videos put up for family to watch in Vimeo, music stored in and streamed from cloud services. All of this is augmented by GBs, or in some cases even TBs, of videos, photos, and music on the PCs in the home. People's content is spreading out everywhere, and as cameras are now high-resolution and always in your pocket (via your phone), the amount of content being generated every day is multiplying rapidly. A service like SkyDrive providing up to 100GB of cloud storage dramatically changes how you think about your PC and the resources you have access to.

These are a few of the key things we took note of in 2009. What all of these trends have in common is that people had started to use their PCs with different expectations and scenarios in mind. Although the PC remains the world's best tool for writing and typing and creating and making things, people increasingly were doing different kinds of things with the time they spent on their PCs. And they had started to expect PCs to behave more like their phones: connected, mobile, long battery life, centered on people and activities and keeping up with what's going on.

At the same time, apps have continued to get richer on mobile devices, as developers have had more time and experience developing apps. Along the way, mobile platforms continue to add APIs and functionalities that already exist in Windows.

We realized that to enable Windows to lead with these trends emerging, we needed to reimagine the Windows experience. Like so many other times in our history, we needed to bring the Windows experience forward: not only to better service what people are doing today, but to anticipate and cultivate the ways they will be using PCs in the future; to modernize the experience of using Windows, and to set the stage for the next decade of platform and developer innovation; to make the PC the most desirable, useful, and loved device in the world.

Windows 8 looks forward towards a new world of capabilities, new hardware, new apps, and new scenarios. Windows 8 is about a billion people doing new things, and the next billion people experiencing Windows for the first time.

### **Goals of the Windows 8 user experience**

As we designed this new experience, a few clear goals emerged for the characteristics of what we wanted to create.

#### **1. Fast and fluid.**

Those of you who have followed Windows 8 coverage over the last year have undoubtedly [read or heard the phrase "fast and fluid."](#) This is not some "marketing" tagline we have recently created; these words are part of the [design language](#) we used to define what we intended as the soul of the new user experience in Windows 8. If Windows 8 were to be embodied in a phrase, this is it, and our goal is for this description to fit the product.

Fast and fluid represents a few core things to us. It means that the UI is responsive, performant, beautiful, and animated. That every piece of UI comes in from somewhere and goes somewhere when it exits the screen. It means that the most essential scenarios are efficient, and can be accomplished without extra questions or prompts. It means that things you don't need are out of the way.

It also implies to us a certain feeling of fluidity or weightlessness in using Windows. For instance, swiping from the edge of the screen with your finger to bring up controls feels fluid and natural and pleasing. The human finger is designed for that kind of motion! For example, dragging down from the top of the screen to close an app, or dragging a tile to the bottom of the screen to invoke zoom and then moving it to a distant part of the Start screen feels satisfying to do, in addition to being efficient.

#### **2. Long battery life.**

Because most Windows PCs are now battery powered (and soon the vast majority will be), great battery life is just a requirement. When the original Windows programming model was created, literally every PC was plugged in all the time. There was no concept of power management or battery drain. As a result, programs were free to do whatever they wanted. Once running, they ran constantly, regardless of whether you were interacting with them or not. Programs could consume all the memory on the system, or all the CPU, or write to disk every second. Basically they could, in a totally unbridled way, chew through your battery.

Traditionally, the design of PC software was centered on using the CPU as much as possible, whenever possible, because "[MIPS are cheap.](#)" In contrast, now we heavily scrutinize usage of the CPU, and understand the role it plays in preserving or reducing battery life. In a mobile world, this is a new type of engineering tradeoff. Where Microsoft used to primarily focus on reducing memory consumption, now we are also laser-focused on improving battery life while still delivering a fast and fluid user experience.

That means optimizing for memory consumption and CPU and GPU and performance and battery characteristics all at the same time, across a variety of platforms and hardware configurations. Therein lie the real engineering tradeoffs inherent in building a mobile OS, or just a modern OS that happens to be used on a mobile device.

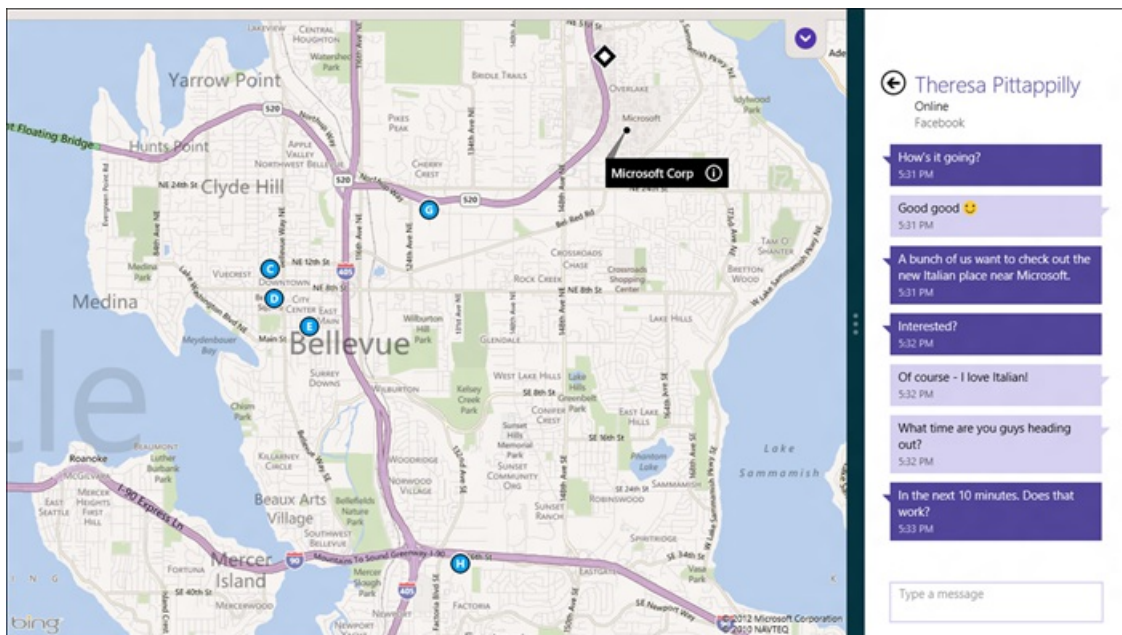
Once we understood how important great battery life was, certain aspects of the new experience became clear. For instance, it became obvious early on in the planning process that to truly reimagine the Windows experience we would need to reimagine apps as well. Thus, [WinRT](#) and a new kind of app were born.

To help extend a device's battery life, WinRT-based apps know how to save their state instantly. [Windows can throttle them down to use no CPU or memory on a moment's notice](#), but without the user losing anything they've been working on in the app. When the app resumes, it resumes in exactly the same place it left off. To the user, it has been running all the time—but technically the program has been suspended or terminated in the background.

There's a reason phones and tablets generally show only one app on the screen at a time. It is not just because of the traditionally small screens on these devices, or because doing one social update is all people do, or because "toy apps take up the whole screen." It is because "one-at-a-time" lets an OS manage the background activity on the device so that only apps you are actively using can drain the battery.

Even with multitasking in the existing desktop still present (and improved), we did feel like only offering "one-at-a-time" in the Metro style experience was a bit of a constraint, and not totally true to the Windows history of multitasking. So we evolved Snap for Windows 8. This feature lets you run any two WinRT-based apps side-by-side, so that you can watch a video while you browse the web, or video chat while checking mail. And we created [facilities for background processing](#) of a wide class of apps, and [background notification capabilities](#) that are unique to Windows as well.

In the below picture, you can see the Windows 8 Messaging app snapped next to the Maps app—two apps at once, even on a tablet.



### 3. Grace and power: Windows 8 apps.

Windows 8 apps are so much more than just optimizing for battery life though. These apps are beautiful and immersive, using every pixel of the screen to display their content. For years, each release of Windows added more and more chrome around the edges of your screen and windows—buttons and widgets and gadgets. Windows 8 reverses this trend, with Windows itself receding into the background, and putting the content of your apps ahead of the chrome.

Every app has a rich canvas with which to express its soul—when you're using a news app, you're fully immersed in news. When you're checking your social networks, content is presented beautifully and artfully and in ways that draw you in to spend more time enjoying yourself. When you play a game, you're fully and completely immersed in the game. (Although, some types of games have been doing full-screen for years!)

And over time, as apps evolve, when you're editing photos, writing a document, managing your finances, or any other professional productivity task, you'll also be immersed in that. Of course, if you use popular professional tools today, you can see how they are on a path to being full-screen and immersive already. Our unique app constructs such as [contracts](#), [pickers](#), and [many other cross-app capabilities](#) (all accessible globally via the [charms](#)) are about new ways to connect apps together, and are relevant for anything from intense data transfer between apps to sharing a quick link via email. These cross-app capabilities (and more importantly the APIs) are a unique element of Windows 8.

Windows 8 apps are purpose-built and tailored for the specific set of scenarios they are great at. This is different than traditional



desktop programs, which often contain hundreds of loosely-related, powerful, but hard-to-find features. Windows 8 apps focus on being great at something, or a few things, and really delivering a great experience for those targeted scenarios.

The history of development tools and system management tools shows that this approach of “[little languages](#)” (or “tiny tools”) vs. monolithic apps maps better to a world in which obtaining and using apps is easier. The rich capabilities of the Windows Store, contracts, and the searchable Start screen all were designed so that it is easy for people to have, find, and use many apps in Windows 8.

Even though apps express their individual personality and brand and content, they still do so [within the harmony of the overall “Metro style” design experience](#). Great Windows 8 apps [align to a common typographic grid](#) so that the PC feels fluid and harmonious as you switch between apps. We created standardized ways of doing common tasks: with touch, you swipe in from the edges to reveal commands. With a mouse, you move to the corners. The lower-left corner of the screen takes you to Start, no matter where you are. Right-click always reveals off-screen commands for the app you’re using. Within apps, Settings and Search and Share are always in the same location (the charms), no matter what app you are using. There is real value to having the consistent aspects of apps always work the same way. Yes, you do have to learn a few simple things up front, but once you know them, you know how to use the entire system.

WinRT apps scale gracefully from small 7” screens to large desktop monitors, to even larger wall-sized TV screens. Check out the Maps app in Windows 8 being used on an 82” touchscreen during the Consumer Preview launch event in Barcelona! (Or, [watch the video](#), starting approximately at 1:13:00.)



These apps were designed from the beginning to allow developers to target devices with extremely high-density displays. They are designed to work well no matter what input method you choose to use them with—mouse, keyboard, touch, or pen. WinRT apps are designed for the future, and for all of the ways that hardware devices and people’s expectations are evolving.

Because all WinRT apps come from the Windows Store, you can find and install them with confidence. The apps run in a local sandbox called AppContainer, so they can’t mess with or corrupt your PC. And they always uninstall cleanly, without a trace left behind.

#### **4. Live tiles make it personal.**

The heart of a new Windows 8 app is its tile. We know that people are increasingly snacking on snippets of live information. Who wrote on my timeline? Did I get any new email? Did anyone post pictures of yesterday’s party? Did anything big happen in the news? Who’s winning the game? Is my expense report approved? Did someone beat my high score? Is it my turn? When is my next meeting? Is a new book by my favorite author available for preorder? Is our inventory running low? What’s the traffic like?

Today, this is increasingly how we see many people use their devices, obsessively switching between different websites and programs on their PC and apps on their phone, checking to see if there’s anything new to see or do.

Tiles are designed so that you can see all of this information together in one place, with a single click, tap, or keypress from anywhere in Windows, without even opening your apps. It takes a bit of imagination right now in the Consumer Preview to fully visualize how this might work, because only a very small number of apps are currently available, and for many of these, developers are still working on building great tiles.

This is also an area where we are bringing together a set of disparate concepts and more strongly connecting them to the apps you actually use. Today, we are all familiar with a row of icons in the Notification Area near the clock, beckoning for our attention (each one using different interfaces, with different methods of control to silence them). These are separate processes running silently (and perhaps secretly) in the background, waiting to update us at inopportune times, and otherwise using system resources like battery

power. Gadgets, introduced in Windows Vista, held the promise of providing a more connected UI surface, but failed to relate to the apps and services we care the most about.

But as we move closer to general availability of Windows 8 and beyond, to a time when all of your favorite apps are available and represented by tiles, suddenly your Start screen will become a personalized dashboard of everything you care about. Your whole computing experience has the potential to be encapsulated in one view. A view that you organize and control.



Even content from within apps can be pinned to Start: people, mail folders, accounts, websites, books, albums, singers, movies, clients, sports teams, cities, etc. Everything you care about is efficiently available and up-to-date at all times. Tiles are the future and fit the way people look for fresh content in apps and websites. Just as yesterday's static highway signs telling you what you already know are being replaced by active and customizable message boards with road conditions, traffic alerts, and flexible lane usage, your PC should convey information that is current and up-to-date. Icons are yesterday's way of representing apps.

## 5. Apps work together to save you time.

I mentioned before that we have observed that people are increasingly spreading their time and content across an ever-wider cross-section of websites, cloud services, and apps. The result of this is that your stuff is strewn everywhere! Some stuff is stored on your primary PC. Other things are trapped inside apps or cloud services that you can only get to from within those apps or websites.

This leads to many common tasks being more complicated to complete than when, in the past, everything would be saved locally to your PC.

For instance, let's say that you are in a Skype call and you want to send a picture from a show you were at last weekend. Assume you took the picture with your phone and posted it to Yammer.

To do this today, typically, you would open your web browser, log in to Yammer, go to your main page, click on Images, find the photo and click it to select it, right-click it and choose Save As, put it somewhere on the hard drive, then switch back to Skype, choose "Attach", navigate to wherever you put the photo on your hard drive (hope you remember!) and then click it again to attach it. That task took at least eight steps to complete. And now you have two copies of the photo: one on Yammer, and a duplicate somewhere on your PC. It takes expertise and time to find that duplicate file, move it around, or ultimately delete it. What was once a simple photo sharing scenario has become laden with "file management" tasks.

There is a better way, and it is part of what makes Windows 8 apps so powerful. Windows enables any Windows 8 app on the PC to share data with any other Windows 8 app, even if those apps know nothing about one another.

Think about the scenario above again, except this time using Windows 8 apps for Skype and Yammer. From Skype, you click "Attach" and a picker with all of your local photos appears. But because you've installed a Yammer app, you can also instantly switch to pick between photos on Yammer. You click the photo that you want, and it is now attached in Skype. Done! That's only three steps—five fewer than the way it works today.

Although other OSs have attempted to streamline such tasks by hard-coding one or two currently popular services, Windows 8 is more useful, flexible, and future-proof. Our way is not limited to only a small set of specific, known services that are "baked into" the OS.

Any new Windows 8 app can pick from, share with, or save to any other installed app (and of course to the set of services that the app knows how to connect to.) It is a reinvention of how apps work in an OS, with Windows providing the "glue" that binds apps

together. Getting to your stuff, in any service, anywhere in the cloud, is just as easy as getting to that data on your local PC or home network—as long as the service builds a Windows 8 app. And with a reach of over a billion Windows users worldwide, we expect most services will see the value in creating an app for Windows 8.

## 6. Roam your experience between PCs.

Just like the experience of using most websites, you can sign in to your Windows 8 PC using an online account. The account used to sign in to Windows is called a Microsoft account. It can be an existing Windows Live ID (the email address you use for Xbox Live, Hotmail, and most other Microsoft services), or one can be created using any email address you own.

Once you are signed in, something magical happens—as you personalize and customize your Windows experience, the changes roam to any other PC.

Have a lock screen picture or desktop wallpaper you love? It's there on every Windows 8 PC you sign in to. Configure your settings, colors, and pinned websites just the way you like them? They move with you. Play the first ten levels of a game? You don't have to replay them again on your other PCs. Your saved passwords and favorites and language settings are all just there, whenever you sign in.

After you invest deeply in personalizing Windows, we don't want you to have to redo those steps on every PC you use. Just like if you changed a setting on your favorite website while signed in, you would expect that setting to persist no matter what device you signed in from. We want that same experience in Windows 8. And because roaming is part of the WinRT platform, any app developer can roam the settings for their app just as easily as Windows roams system settings. Roaming is not just for a single app or browser, but part of a platform that every app can easily use and everyone benefits from.

## 7. Make your PC work like a device, not a computer.

Today most people love their PCs, but it is clear that people's attitudes and expectations are changing for just about any device they carry around with them. People really want a product that just works. They want to sit on the couch and enjoy their favorite apps and games and websites and not worry about the vagaries of the registry or a million control panels or power profiles. They want to pick it up, enjoy using it, and then set it down.

In contrast, today's Windows is almost absurdly configurable. Even the most obscure features are often tweakable through a sometimes impenetrable labyrinth of control panels, group policies, special command-line utilities, undocumented registry keys, etc. Most of these settings are changeable not only by the user, but by any program that happens to be running on the PC that decides to "tweak" something. Much of what has been pejoratively called [winrot](#) over the years is due to overzealous downloaded programs overstepping their bounds and installing system services and updaters and background tasks and all sorts of things that slow down the system.

We recognize that in the proper hands, or in the hands of someone who is willing to tolerate the downsides, these are not features to be critical of, but assets of Windows. Our intention is not to lock down Windows, but to provide a platform that meets consumer expectations for how a device should work. These assets are far too easily abused or accidentally misused—there is a better way.

Our goal in Windows 8 is to redefine people's expectations of their PC. The most commonly used settings (those similar to the ones exposed on most phones or tablets today) are available within the new UI. New Windows 8 apps cannot alter system settings for the most part (with the exception of a few specifically architected capabilities, such as enabling location services or using the webcam, which require user consent.)

Windows updates are applied silently in the background and in the middle-of-the-night "maintenance window" whenever possible. Because Windows 8 apps know how to preserve their state, this is totally seamless to you.

On [SoC-based devices](#), you touch the power button to turn the screen off, and behind the scenes, your PC is immediately moved into a low-power mode. Press it again, and the device instantly wakes up. Windows 8 turns the PC into a device that delivers the kind of experience people expect out of a modern mobile device.

Now if you are an expert who really craves all of the traditional flexibility and customizability of all of the knobs and levers in the system, you can still access them just as easily as you could in Windows 7. These settings are still there, and they still work. The Control Panel and `gpedit.msc` and PowerShell and all of the other places you do expert customization of your PC are still there for you. People who don't have the knowledge to use these advanced settings effectively can just enjoy their devices. And for those who do want that power, it is there for them.

Although these seven goals were certainly not the *only* aspirations we had when designing what became the Windows 8 user interface, they give you some idea of the relationship between the trends we observed and anticipated, and how these observations directly mapped to the goals of the new UI.

## Touch as a first-class input method (but not the only one!)

Windows has continually innovated to adapt to and enable new ways of working with the PC.

The earliest versions of Windows were designed to be used with a keyboard. Windows helped transition mainstream users to the mouse by [bundling a mouse with the first version of Microsoft Word, over 25 years ago!](#) This transition took quite a while, as many users were initially very skeptical of the mouse. “Real users only use the keyboard!” (Some might still say this. [The good news is, we have you covered.](#)) Of course now, all these years later, it is hard to imagine using a PC without a pointing device.

In 2001, [Microsoft announced Tablet PC](#), an “experiment” with a new kind of PC form factor, powered by the pen. We developed the best handwriting recognition in the market for certain languages. We pioneered ways to integrate [natural “ink” and drawing](#) into traditional programs like Microsoft Office. We experimented for the first time with slate PCs that had no keyboard. While the technology was not ready ten years ago to build light enough and quiet enough PCs with enough battery life to make this form factor widely compelling, clearly Tablet PC got a lot right in terms of predicting aspects of future computing.

So Windows originally had keyboard support, then added an assumption of mouse, then added the ability to use a pen. At each step of the way, these input devices were integrated into the core Windows UI without forgetting about or degrading the experience of the existing input methods.

Of course, some things had to change about how the user interface worked as each new input method was added (like, once you bet on a 2D grid of icons such as Program Manager did in Windows 3, keyboarding around with the arrows to launch an app becomes more cumbersome vs. traversing a simple list.) But it is fair to say that as of Windows Vista, mouse and keyboard were first-class input methods, with pen as a well-supported but secondary way of interacting with the PC.

Which brings us to the current day. In Windows 7, we introduced multitouch support into the base OS. Touch is an incredibly important long-term bet for us. For an increasingly large number of people over time, it will be the primary way they interact with Windows. And for the vast majority of users, it will eventually be used alongside mouse and keyboard to complete their experience.

In 2009 when we started planning Windows 8, touch was often ridiculed on phones—the rumors of an iPhone with a keyboard were prevalent and often [hopeful](#). It is almost quaint to look back at the speculation from many wishing and hoping for an iPhone with a slide-out keyboard.

Today, you would be hard pressed to find many people who still dream of a phone with a physical keyboard, though in a diverse world with diverse needs, even a small percentage of people represents a large absolute number.

Tablets, of course, don’t come with physical keyboards. But something is different about tablets—people still do desire a physical keyboard. We’ve all seen countless peripherals spring up that provide a keyboard for a tablet as a case or other accessory. Why is that? We see time and time again that it is because people want to use a tablet in place of their PC, and adding a keyboard is the best way to get more work done.

Even in the absence of software like Microsoft Office, the reality is that when you need to write more than a few quick lines of text, you yearn for something better than on-screen typing. Touch typing rates on glass are at best half that of a physical keyboard (and frequently much less), and so the extra time, energy, and thought needed to get the work done is a real issue.

Just as there were always people who could type large amounts of text with [T9](#), there are people who swear by multitouch typing as more than good enough for their work. Looking broadly, however, people benefit from the highly accurate, reliable, and fast user input enabled by a physical keyboard, and we think an OS and its apps should not compromise when one is available.

Beyond phones, touch has become the single most pervasive user model for a vast array of interactions—many of those powered under the hood by Windows PCs! From cash registers, to ATMs, movie rental kiosks, airline check-in, and grocery checkout, touch is literally everywhere. How would you explain to a 5-year-old that when she touches a laptop screen, nothing is supposed to happen?

To think that your PC would remain the single computing device you do not touch seems illogical. It is reminiscent of historic debates over the use of color back when PC displays were generally monochromatic; despite color being everywhere around us, many people believed color would be a distraction to work and should be reserved for play. (The Office team actually had a significant debate about the use of color icons in the first version that introduced toolbars.)

In a decade (or probably less,) we will look back at this transition period and say to each other “Hey, do you remember how PC screens didn’t used to be touchable? Wow, isn’t that weird to think about now?”

## Designing for a successful touch experience

Some bloggers have written about how Microsoft invested in developing touch in Windows 7, but ultimately had a poor approach, as evidenced by the touch experience of both phones and tablets surpassing that of Windows-based devices. Going back to even the first public demonstrations of Windows 7, we worked hard on touch, but our approach to implementing touch as just an adjunct to existing Windows desktop software didn’t work very well. Adding touch on top of UI paradigms designed for mouse and keyboard held the experience back.

We took a step back and substantially changed both our approach and our implementation of touch for Windows 8.

Our approach to embracing touch in Windows 8 involved two parts:

### 1. Improving touch on the desktop.

We knew we needed to improve touch in the existing desktop using the feedback we received from touch users in Windows 7. We created larger touch targets, spread out controls a bit more, and added fuzzy targeting logic to make it easy to grab common controls



such as resizable window borders.

We resisted the temptation to make people choose between using mouse + keyboard OR touch. So many elements of desktop apps just assume people are using both a mouse and a keyboard, and no number of improvements we make to the touch experience on the desktop can fix what has been assumed and designed into these existing app interfaces. (After all, these programs have already been released to the market, in many cases a decade or more ago!)

However, we do believe that touch is a useful adjunct to mouse and keyboard on the desktop. Historically, a new input method is seamlessly integrated as people learn the best use for it. Context menus, keyboard shortcuts, toolbars, and menus are all different ways of doing the same thing, yet everyone makes their own choice about what works best for them.

Touch will evolve the same way. Having used a touch-enabled laptop every day for the last year (a Lenovo x220 tablet), I have a hard time imagining *not* being able to touch the screen for scrolling, or to tap the OK or Cancel buttons in a dialog box. Whenever I use a non-touch laptop, it is as if I've forgotten how to use the PC. Of course touch is not the primary way I use this laptop, but it is a crucial piece of how I interact with it. Even on the large-screen monitor I use at work, I just instinctively touch it—I don't think "because this screen is attached to a desktop PC, I must not be able to touch it."

## 2. Creating an environment exclusively or primarily suited for touch input.

Within the new UI and WinRT apps, touch is promoted to an equal citizen alongside mouse and keyboard. Just like you can use a PC with mouse and keyboard only (or just keyboard,) you can also have a great experience using the UI with just touch. In other words, we aspired to design a user experience that is new, worked for touch-only devices as a first and only input method, and when a mouse and keyboard are added, these can be used exclusively or with touch. Keyboard shortcuts are there alongside gestures—you pick based on your preference and the capabilities of your PC.

Many have opined that touch can have no role in certain form factors—we're all familiar with those quick to make comments about gorilla arms, fingerprints, poking at a screen, and so on. Many comments with this same tone were at the foundation of initial negative reaction to the mouse—"it makes me move my hand from the home row on the keyboard," "I get sore wrists," "it takes my focus off of my work while looking up at the screen," etc.

While the ergonomics of a [tablet placed in a dock with a keyboard](#) is similar to that of a touch laptop, there is no doubt that touch is new and different in a laptop and desktop. But when you consider that we do not think it has to be used exclusively, it starts to look only like a benefit when it is there. (And our design does not assume it is always there—although we think you will learn to miss it when it is not.)

We designed Windows 8 to take into account the desire to have a PC that works the way you do—whether you want a laptop with a permanent keyboard, a tablet with a keyboard you can attach (wired or wireless), or something in the middle. Touch works across all of these form factors, and you choose which input method to use when. This is what we mean when we say Windows 8 provides a no-compromise experience.

## Metro style and the desktop: working together

Most of this post thus far has discussed some of the ways we designed Windows 8 in response to the trends we observed: the popularity of laptops and tablets, and the corollary expectation of excellent battery life; a focus on people and activity as the center of attention more than just files and documents; the ubiquity of cloud services; and the upcoming universal prevalence of touch on every PC.

So what is the role of the desktop in Windows 8?

It is pretty straightforward. The desktop is there to run the millions of existing, powerful, familiar Windows programs that are designed for mouse and keyboard. Office. Visual Studio. Adobe Photoshop. AutoCAD. Lightroom. This software is widely-used, feature-rich, and powers the bulk of the work people do on the PC today. Bringing it forward (along with the metaphors such as manual discrete window sizing and overlapping placement) is a huge benefit when compared to tablets without these features or programs. It is an explicit design goal of Windows 8 to bring this software forward, run it better than in any previous version of Windows, and to provide the best environment possible for these products as they evolve into the future as well.

We see our approach validated time and time again. On one hand, the makers of tablets and phones are in a race to add "PC capabilities" to their devices: support for peripherals like printing, remote access, high-resolution screens, or classes of new APIs for developers that already exist in Windows. At the same time, we also see consumers demanding features in these platforms that have existed for years in Windows—from things as mundane as full support for the keyboard and mouse, to things as complex as support for multiple monitors, background processing, or third-party accessibility tools.

On other tablet platforms, there has been significant customer interest in apps to bring the Windows desktop, running software like Office, to touch devices. These solutions use over-the-network remoting technologies to send pictures of the screen and touch input back and forth between the tablet and a real Windows PC. Of course, because these tablet devices don't natively support Windows software or a mouse, and because they require uninterrupted network connectivity, the experience is suboptimal—subject to frustrating lag, pixilation, and disconnections from the host PC.

We do not view the desktop as a mode, legacy or otherwise—it is simply a paradigm for working that suits some people and specific apps. This is very much like the person who uses a mobile "phone" but really uses it for the mobile browser and mail client and rarely uses apps or the phone. It

is like the person who has a brand new tablet but only uses the web browser.

The desktop is a great way to work with mouse/keyboard and a large monitor or several monitors. It is a powerful and flexible paradigm, allowing for pervasive control over the size and layout of windows on the screen.

If you only want to “live in the desktop,” if you never plan on using a PC with touch or using any apps from the Windows Store whatsoever, [Windows 8 still has a lot to offer](#). The Windows 7 desktop experience has been brought forward and significantly improved, with additions such as the [new Task Manager](#), [new Explorer](#) and [file copy UI](#), [Hyper-V on the client](#), multi-monitor taskbar and wallpaper, etc. And all in a package that uses fewer system resources than Windows 7. The new Start screen is simply a continuation of the Windows 7 trend of unifying disparate elements of the user interface—starting, launching, switching, and notifications.

It is really your choice. You can use only desktop apps if you want. You can use only new apps and never leave them if you want (in which case all of the desktop code is not even loaded.) Or, you can choose to mix and match apps that run in both environments. We think in a short time everyone will mix and match, simply because there is so much creative development energy being put into the new scenarios made possible by new Windows 8 apps.

## Two devices, not three

Imagine a tablet. Light and thin. Amazing battery life. Gorgeous screen. You can lounge on the couch enjoying a beautiful, fluid experience, doing the things you love to do on a tablet: playing games, socializing, browsing the web, reading, touching up photos, watching TV. You are just immersed in your experience, doing the things you love to do. You hand it to your daughter and she knows exactly how to use it.

But then, if you want to have a bit more control and efficiency, you can set this same tablet in a stand and attach a keyboard, or just flip a keyboard around, and suddenly you have a complete Windows desktop experience, with full Microsoft Office, multiple monitors, peripherals, and a mouse.

Or, imagine a featherweight laptop with a beautiful large screen and a great keyboard. But in addition to doing everything you use your laptop for today, you can also use your favorite new apps built for today’s tablets.

Windows 8 imagines the convergence of two kinds of devices: a laptop and a tablet. Instead of carrying around three devices (a phone, a tablet, and a laptop) you carry around just a phone and a Windows PC. A PC that is the best tablet or laptop you have ever used, but with the capabilities of the familiar Windows desktop if you need it. You may choose to carry a tablet, or you may choose a laptop/convertible, but you do not need to carry around both along with your phone. You never think about a choice, or fret over your choice of what to carry. Things just work without compromise.

Great hardware like this doesn’t quite exist yet, but it will be commonly available later this year. This is the promise of the Windows 8 experience. With a little imagination, you can start to see why this kind of device will change the way you think of a PC.

## Updating the visual appearance of the desktop

Several bloggers have wondered about how much we would be changing the visual appearance of the desktop in Windows 8.

We have appreciated seeing people on various sites post screenshots of their proposed designs for “Metro-izing” the visual appearance of the desktop. It is exciting to see the interest and passion that goes into designing them!

We spent a lot of energy carefully considering how substantially to update the appearance of the desktop in Windows 8. We looked at many, many pictures, and considered hundreds of designs. Our primary goal was to bring visual harmony to Windows, while still preserving much of the familiar feel of the Windows 7 desktop and not sacrificing the compatibility of existing apps.

In the end, we decided to bring the desktop closer to the Metro aesthetic, while preserving the compatibility afforded by not changing the size of window chrome, controls, or system UI. We have moved beyond Aero Glass—flattening surfaces, removing reflections, and scaling back distracting gradients.

A couple of the considerations we thought through:

- While much of the Metro style UI uses white text on a colorful saturated background, the desktop in Windows 8 will continue to use black text on light-colored chrome, as in Windows 7. This choice was made to help preserve maximum compatibility with existing programs.

Since the release of Windows Vista (which introduced Aero Glass), many desktop programs have integrated with glass, making assumptions that they should custom draw dark text with a cloudy “blur” texture behind it to make their text readable.

Some of you may remember the substantial compatibility problems that arose when the system colors changed from light on dark (Windows XP) to dark on light (Windows Vista.) It took many years for these to be fully sorted out. We would prefer not to reintroduce these compatibility issues again in the other direction. So, “color matching” the new design on the desktop is not entirely feasible.

- But at the same time, we want desktop windows to continue to feel light and airy, and we want a chrome style that doesn’t distract from the content of the app. We talk about Metro style apps as being “chromeless,” (that is, no title bar, borders, or Windows UI surrounding them.) Desktop apps, on the other hand, have a lot of chrome. When you add up the cacophony of a bunch of these windows floating on the

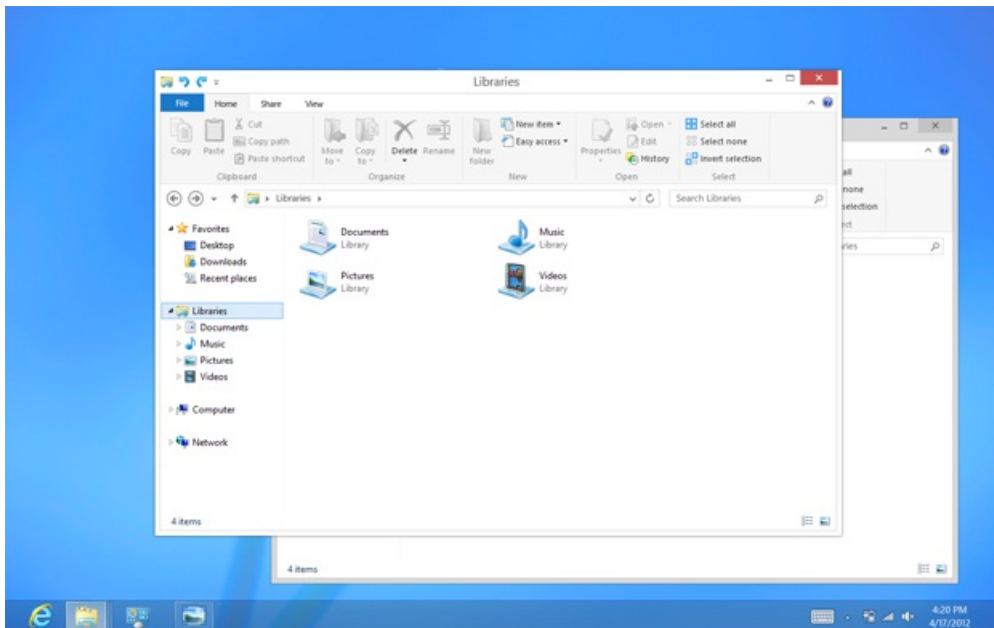
screen, suddenly you have a lot of chrome pleading for your attention. Aero was designed to [help the app's content to be the center of attention](#), and for the Windows system UI to recede into the background. This is still relevant today, and while we are moving beyond Aero, we don't want to lose sight of these goals.

- Visual compatibility with Windows 7. Windows 7 is the most popular and widely-used version of Windows so far. We made a conscious effort to relate the visual appearance of the Windows 8 desktop to the visual appearance of the familiar Windows 7 desktop. This helps people who want to predominantly use the desktop feel comfortable and immediately at home in the new environment.

We have made a number of improvements to the desktop visual appearance in Windows 8. Although we wanted the desktop to feel familiar, we also wanted to take some ideas from our new design language and apply them where we could.

We applied the principles of “clean and crisp” when updating window and taskbar chrome. Gone are the glass and reflections. We squared off the edges of windows and the taskbar. We removed all the glows and gradients found on buttons within the chrome. We made the appearance of windows crisper by removing unnecessary shadows and transparency. The default window chrome is white, creating an airy and premium look. The taskbar continues to blend into the desktop wallpaper, but appears less complicated overall.

To complete the story, we updated the appearance of most common controls, such as buttons, check boxes, sliders, and the Ribbon. We squared off the rounded edges, cleaned away gradients, and flattened the control backgrounds to align with our chrome changes. We also tweaked the colors to make them feel more modern and neutral.



While a few of these visual changes are hinted at in the upcoming Release Preview, most of them will not yet be publicly available. You'll see them all in the final release of Windows 8!

## How will people learn to use Windows 8?

As people have tried the Consumer Preview, some folks have publicly asked questions about “learnability.” The new UI introduces a few new concepts to the PC: in particular, swipe from the edge (for touch) and move to the corner (for the mouse.)

Neither gesture works perfectly in the Consumer Preview—it should be expected that some things will not be perfect when we effectively design and test the product in the open like we do. The corners are too fragile to target reliably with the mouse right now, and it is too easy to frustratingly “fall away” from them. We have already significantly improved this in internal builds. And today's touch hardware, which was designed for Windows 7, doesn't always do a great job of interpreting swipes from the edge. The good news is that hardware designed for Windows 8 will have excellent edge detection, and our device manufacturer partners have been working on this for a long time.

So, the gestures themselves will work more consistently, and will be better-tuned than what is in the Consumer Preview. But how will people learn to use them?

We will post more about learnability soon: about how people discover and understand new concepts, and the specific steps we will be taking to make sure that people don't feel lost the first time they sit down with a Windows 8 PC.

But fundamentally, we believe in people and their ability to adapt and move forward. Throughout the history of computing, people have again and again adapted to new paradigms and interaction methods—even just when switching between different websites and apps and phones. We will help people get off on the right foot, and we have confidence that people will quickly find the new paradigms to be second-nature.

## Looking forward

The Windows 8 user experience is forward-looking, yet respectful of the past. It reimagines what a PC is capable of, the scenarios for which it is

optimized, and how you interact with it. It enables tablets and laptops that are incredibly light and thin, with excellent battery life, which you can use with touch and keyboard and mouse in any combination you prefer. It is also the most capable, lean, and usable OS ever to power desktop PCs and gaming rigs.

The new Windows 8 user experience is no less than a bet on the future of computing, and stakes a claim to Windows' role in that future. We tried to break new ground in imagining how using a PC might become a fluid and enjoyable experience, how apps might work together to simplify the tasks you do every day, and how a single screen could bring together everything you love and care about into one always up-to-date place.

We believe in convergence—this has happened again and again in technology, and it will continue. We believe that you will want to carry around fewer, more capable devices. In addition to your phone, you want only one device that is equally at home on the couch and on the desk. You want a device that is light enough to hold for hours, but powerful enough to do real work with familiar and full-featured software—and which also allows a mouse or physical keyboard if you want. A device that is deeply personal, that natively understands the cloud, that roams your settings and content wherever you go.

Yes, there are parts of the Windows 8 UI that have generated discussions and even debate, and aspects of the change that will take some people a little time to understand and digest. Any change, particularly a change that doesn't just follow in the footsteps of what everyone else is doing, can be hard to fully grasp at first and will bring forward its share of both deep believers and naysayers.

The full picture of the Windows 8 experience will only emerge when new hardware from our partners becomes available, and when the Store opens up for all developers to start submitting their new apps. At the same time, there's no doubt that all the features of Windows 8 are compelling on today's hardware designed for Windows 7—with or without touch. Since we designed Windows 8 to work great for laptops and desktops, it will work naturally for your Windows 7 hardware. Think of past versions of Windows that worked on existing hardware but were even better with new hardware. That's our approach with Windows 8.

In 1993, when today's familiar Windows 95 user experience was first designed, PCs were beige, heavy, disconnected, and sitting under an office desk plugged in all the time. An average PC cost \$3450 in today's money!

Today, PCs are in the kitchen, in the living room, at the coffee shop, in your purse, on the train, in the passenger seat of your car. Increasingly they are mobile, always connected, affordable, and beautiful. And Windows PCs are in the workplace, no matter where that is or moves to. What would have seemed unrecognizable and "post-PC" 20 years ago is now the very definition of a PC.

The world changes and moves forward. Windows will continue to change too, as it has throughout its 27-year history.

Our vision for Windows 8 was to create a modern, fast and fluid user experience that defines the platform for the next decade of computing. One which upends the way conventional people think about tablets and laptops and the role of the devices they carry.

We wanted to create an experience that works however you want to work, powering a new class of PCs that you are proud to own and love having in your life.

Jensen Harris