Inside Windows 10

An early look at Microsoft's newest Operating System

by Onuora Amobi

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INSIDE WINDOWS 10 - AN EARLY LOOK AT MICROSOFT'S NEWEST OPERATING SYSTEM VOLUME 1 - BY ONUORA AMOBI

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Introduction

Welcome to the Inside Windows 10 book.

My name is Onuora Amobi and I am a former Microsoft MVP for Windows.

I have been working as an IT professional and executive for close to 20 years and have seen Microsoft products evolve throughout the years.

While **I don't and have never worked for Microsoft**, I have been writing about Microsoft Windows off and on since 2005 and have been continuously fascinated by the twists and turns taken by this company.

Windows 10 is arguably the most ambitious undertaking that Microsoft have embarked on as a software company to date.

As you will read in the following pages, the sheer scale and scope of the undertaking is almost mind blowing and if you follow technology, this is definitely something you will want to keep a close eye on.

This book is simply my attempt to document what we know about Windows 10 all in one place and give you an opportunity to stay informed about Microsoft's latest Operating System.

I hope you have as much fun reading this as I had writing it.

I always love to hear back from readers so feel free to stay in touch with me via the following channels:

- My personal website at www.amobi.com,
- My email at Windows10ebook@amobi.com
- Twitter at https://www.twitter.com/Onuora
- My Windows website at http://www.windows10update.com

OK, enough housekeeping.

Let's get started.

It all started with Windows 8

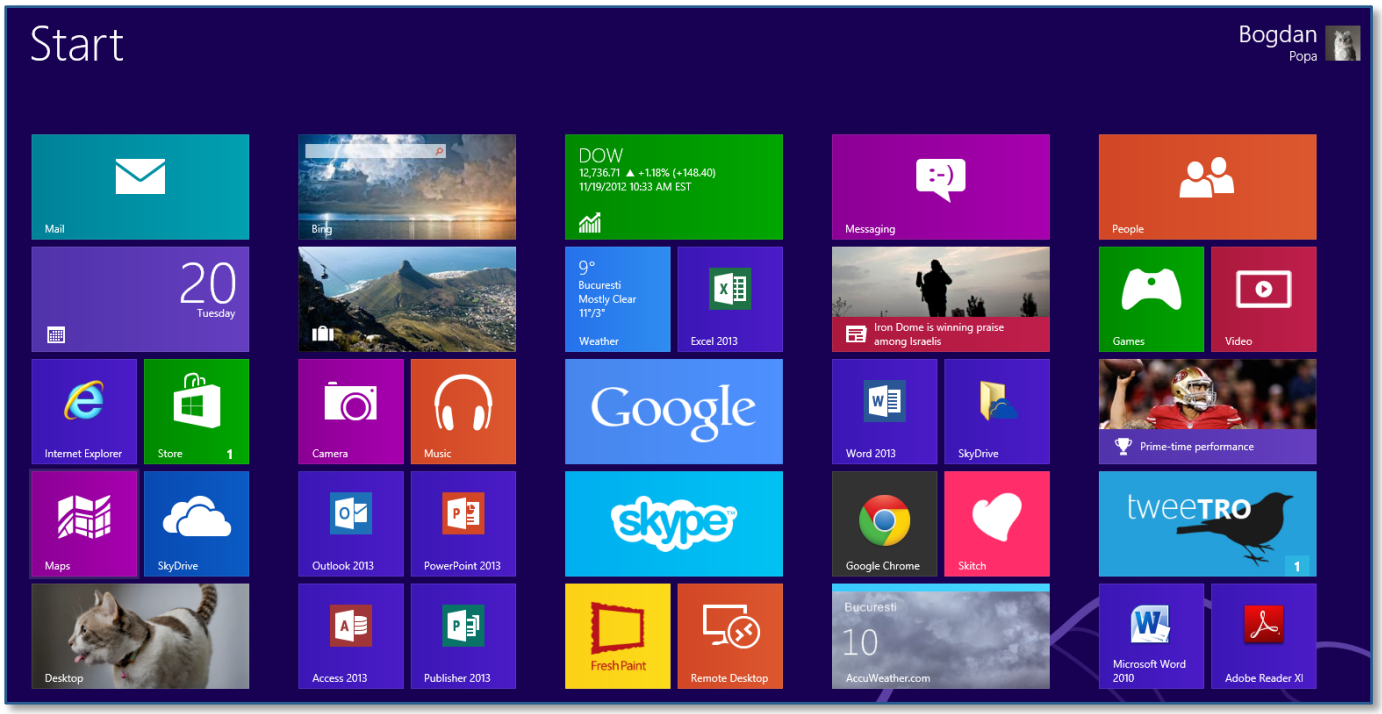


Figure 1 Windows 8

At the end of 2009, when Microsoft released Windows 7, it was a tremendous success. Quick and intuitive, that Operating System was seen as redemption for Microsoft because of the debacle that was Windows Vista a few years before.

By the end of 2012, Microsoft released the latest version of its operating system, Windows 8 and that was the beginning of a series of bad press and user complaints for the company.

Based on January 2015 www.netmarketshare.com statistics, Windows 8 and Windows 8.1 combined are in third place with less than 14% after Windows 7 with almost 56%.

To put this in perspective, 15-year-old Windows XP is present with almost 19%.

Numbers speak clearly and loudly about how successful Windows 8 was compared to Windows 7.

So let's talk about what happened.

When Microsoft started working on Windows 8, they correctly recognized that the computing market was changing.

Tablets and Smartphones were starting to achieve dominance over more traditional technology mediums like laptops and desktops.

In a proactive effort to remain relevant, Microsoft decided to re-design their (then) new operating system Windows 8, to be more flexible and cater to tablets and smartphones as well as laptops and desktops.

The new Interface – Metro

The challenge Microsoft faced was in creating a new user interface that could work just as well on mobile platforms as on non-mobile platforms.

The end result turned out to be very different compared to previous versions of Windows and very difficult for users to master. One of the major culprits was the newly designed Start Menu.

The Start button, which was a constant in Windows operating systems, disappeared in Windows 8. It only appeared if you hovered your mouse over the screen most left bottom corner, where the Start button has always existed.

I won't go back and re-litigate the case against Windows 8 but let's just say, users weren't happy with the changes.

Microsoft, like everybody else, quickly noticed that their user base was staging a very public revolt and tried to find compromises and solutions to placate the public.

They released a modified version of Windows 8, called Windows 8.1.

Figure 2 Windows 8.1

In Windows 8.1, they restored the Start button, re-organized the Start screen and made some significant changes in a effort to remediate the problem.

These “fixes” offered some level of relief to the general public but it was clear that a more permanent and long-term solution was needed.

The Windows 8/Windows 8.1 debacles ushered in some pretty major changes at the world’s largest software company.

So major that it became clear that it was time to replace their CEO.

A new CEO

Figure 3 John Thompson (chairman of the board), Satya Nadella, Bill Gates and Steve Ballmer

Part of Microsoft Corporation's efforts to fix the relative failure of its (then) latest client operating system, Windows 8 involved an executive re-org.

To be fair, Windows 8 wasn't the sole catalyst (investors had been calling for change for years) but it seemed to be the straw that broke the camels back.

The company decided that it had to rethink it's vision for the future and that the (then) current CEO Steve Ballmer was probably not the one to move the ball forward.

I'm a big fan of Mr. Ballmer's but it quickly became apparent that maybe he had been in that chair a little too long. In addition, there was no dispute that he had missed a lot of the game changing opportunities that Apple had capitalized on (iPhone, ITunes etc.).

It had become pretty clear that it was time for change.

On the 4th of February 2014, Microsoft Corporation officially announced Satya Nadella as the new CEO of Microsoft.

That was **my prediction on January the 3rd of that year**. I was a fan even back then.

This was the official statement from Microsoft:

> REDMOND, Wash. — Feb. 4, 2014 — Microsoft Corp. today announced that its Board of Directors has appointed Satya Nadella as Chief Executive Officer and member of the Board of Directors effective immediately. Nadella previously held the position of Executive Vice President of Microsoft's Cloud and Enterprise group.
>
> "During this time of transformation, there is no better person to lead Microsoft than Satya Nadella," said Bill Gates, Microsoft's Founder and Member of the Board of Directors. "Satya is a proven leader with hard-core engineering skills, business vision and the ability to bring people together. His vision for how technology will be used and experienced around the world is exactly what Microsoft needs as the company enters its next chapter of expanded product innovation and growth."
>
> Since joining the company in 1992, Nadella has spearheaded major strategy and technical shifts across the company's portfolio of products and services, most notably the company's move to the cloud and the development of one of the largest cloud infrastructures in the world supporting Bing, Xbox, Office and other services. During his tenure overseeing Microsoft Server and Tools Business, the division outperformed the market and took share from competitors.
>
> "Microsoft is one of those rare companies to have truly revolutionized the world through technology, and I couldn't be more honored to have been chosen to lead the company," Nadella said. "The opportunity ahead for Microsoft is vast, but to seize it, we must focus clearly, move faster and continue to transform. A big part of my job is to accelerate our ability to bring innovative products to our customers more quickly."
>
> "Having worked with him for more than 20 years, I know that Satya is the right leader at the right time for Microsoft," said Steve Ballmer, who announced on Aug. 23, 2013 that he would retire once a successor was named. "I've had the distinct privilege of working with the most talented employees and senior leadership team in the industry, and I know their passion and hunger for greatness will only grow stronger under Satya's leadership."
>
> Microsoft also announced that Bill Gates, previously Chairman of the Board of Directors, will assume a new role on the Board as Founder and Technology Advisor, and will devote more time to the company, supporting Nadella in shaping technology and product direction. John Thompson, lead independent director for the Board of Directors, will assume the role of Chairman of the Board of Directors and remain an independent director on the Board.
>
> "Satya is clearly the best person to lead Microsoft, and he has the unanimous support of our Board," Thompson said. "The Board took the thoughtful approach that our shareholders, customers, partners and employees expected and deserved."
>
> With the addition of Nadella, Microsoft's Board of Directors consists of Ballmer; Dina Dublon, former Chief Financial Officer of JPMorgan Chase; Gates; Maria M. Klawe, President of Harvey Mudd College; Stephen J. Luczo, Chairman and Chief Executive Officer of Seagate Technology PLC; David F. Marquardt, General Partner at August Capital; Nadella; Charles H. Noski, former Vice Chairman of Bank of America Corp.; Dr. Helmut Panke, former Chairman of the Board of Management at BMW Bayerische Motoren Werke AG; and John Thompson, Chief Executive Officer

> of Virtual Instruments. Seven of the 10 board members are independent of Microsoft, which is consistent with the requirement in the company's governance guidelines that a substantial majority be independent.
>
> Founded in 1975, Microsoft (Nasdaq "MSFT") is the worldwide leader in software; services and solutions that help people and businesses realize their full potential.

The cliff notes:

Mr Nadella joined Microsoft in 1992 and he quickly rose to the level where he was considered a leader whose expertise could transform some of the Microsoft biggest business units.

Prior to his role as CEO, Nadella was executive vice president of Microsoft's Cloud and Enterprise group, one of the company's fastest-growing and most profitable businesses.

While Nadella was boss, the group's revenue increased by 22 percent, and its profits by 33 percent.

Before that, Nadella led R&D for the Online Services Division, guiding the development of one of the largest cloud infrastructures in the world, to support products including Bing, Xbox and Office.

As a CEO, Nadella said on July 10 2014 that Microsoft needs to "hone in on its unique strategy".

Mr. Nadella now leads the world biggest software company and has a new vision of unifying the company, simplifying its operations and making it more mobile conscious and agile.

He is focused on transforming Microsoft into a company that makes products people want to buy because they love them not because they need them.

He also is relatively platform agnostic and wants Microsoft to make software that Android and Apple users will love and want to buy as well.

So far his strategy has been well received by investors and the worldwide design, implementation and deployment of Windows 10 will be the first major test of his leadership.

Microsoft Strategy – The Long Game

In a very short period of time, computing has changed tremendously.

Microsoft Corporation dominated computing platforms in the early days when it was all about personal computers (PCs). However (as I said earlier) with the rise of mobile devices (smartphones and tablets) and their rapid adoption, PCs continue to lose market share.

It's really simple people.

There are more non-Microsoft tablets, phones etc. than there are Microsoft desktops. Google's Android and Apple's IOS have really dominated the computing landscape.

Microsoft had to make some really tough choices to make.

- They could focus on making software for a shrinking PC only market or
- They could re-invent themselves and make software that could be used across multiple platforms

Under the influence of the company's new CEO, Satya Nadella, Microsoft has decided to embark on a much smarter and ironically more aggressive strategy to compete with their rivals.

Business Insider summed it up best:

> *In 2012, then-CEO Steve Ballmer wrote an open letter to shareholders labeling Microsoft as a "devices and services" company. It was a signal that Microsoft would not only make the software that people use, but the devices that software runs on. That's a very Apple-like philosophy but one that hasn't paid off for Microsoft, as seen in its Surface line of tablets and acquisition of Nokia.*
>
> *The narrative shifted when Satya Nadella took over as CEO in April. Hardware took a backseat to what Nadella repeatedly called a "mobile first, cloud first" vision of computing, a vague mantra implying that he wanted Microsoft's software and services to power everything, even competing products. The launch of Office on iPad in the spring was perhaps the biggest gesture signifying a new openness at Microsoft.*
>
> *But despite the flood of new products from Microsoft in recent months — the Surface Pro 3; Office for iPhone, iPad, and Android; even a fitness band — Nadella has focused his vision for the company even further. In fact, he sees only three key parts of Microsoft's business.*
>
> "***The core products of this company are Windows, Office 365, and Azure,***" *Nadella told a small gathering of journalists and analysts at Microsoft's headquarters in Redmond, Washington, last week. "From a business model, those are the three big things we are very focused on. We ask how our effort is accruing to those things."*

The new Microsoft plans to be almost ubiquitous.

Windows will be available in almost every form factor and Microsoft hardware will compete aggressively as well.

Microsoft wants its software to exist on everything from computers, phones, TVs, radios, vehicles, kitchen and factory equipment, home appliances…etc.

It's a grand and ambitious plan and this book will showcase some of the elements as they come together.

Before we go to the next chapter, you should listen to the new CEO as he talks about his vision for the company.

Satya Nadella's Introductory Words

From: Satya Nadella
To: All Employees
Date: Feb. 4, 2014
Subject: RE: Satya Nadella – Microsoft's New CEO

Today is a very humbling day for me. It reminds me of my very first day at Microsoft, 22 years ago. Like you, I had a choice about where to come to work. I came here because I believed Microsoft was the best company in the world. I saw then how clearly we empower people to do magical things with our creations and ultimately make the world a better place. I knew there was no better company to join if I wanted to make a difference. This is the very same inspiration that continues to drive me today.

It is an incredible honor for me to lead and serve this great company of ours. Steve and Bill have taken it from an idea to one of the greatest and most universally admired companies in the world. I've been fortunate to work closely with both Bill and Steve in my different roles at Microsoft, and as I step in as CEO, I've asked Bill to devote additional time to the company, focused on technology and products. I'm also looking forward to working with John Thompson as our new Chairman of the Board.

While we have seen great success, we are hungry to do more. Our industry does not respect tradition — it only respects innovation. This is a critical time for the industry and for Microsoft. Make no mistake, we are headed for greater places — as technology evolves and we evolve with and ahead of it. Our job is to ensure that Microsoft thrives in a mobile and cloud-first world.

As we start a new phase of our journey together, I wanted to share some background on myself and what inspires and motivates me.

Who am I?

I am 46. I've been married for 22 years and we have 3 kids. And like anyone else, a lot of what I do and how I think has been shaped by my family and my overall life experiences. Many who know me say I am also defined by my curiosity and thirst for learning. I buy more books than I can finish. I sign up for more online courses than I can complete. I fundamentally believe that if you are not learning new things, you stop doing great and useful things. So family, curiosity and hunger for knowledge all define me.

Why am I here?

I am here for the same reason I think most people join Microsoft — to change the world through technology that empowers people to do amazing things. I know it can sound

hyperbolic — and yet it's true. We have done it, we're doing it today, and we are the team that will do it again.

I believe over the next decade computing will become even more ubiquitous and intelligence will become ambient. The coevolution of software and new hardware form factors will intermediate and digitize — many of the things we do and experience in business, life and our world. This will be made possible by an ever-growing network of connected devices, incredible computing capacity from the cloud, insights from big data, and intelligence from machine learning.

This is a software-powered world.

It will better connect us to our friends and families and help us see, express, and share our world in ways never before possible. It will enable businesses to engage customers in more meaningful ways.

I am here because we have unparalleled capability to make an impact.

Why are we here?

In our early history, our mission was about the PC on every desk and home, a goal we have mostly achieved in the developed world. Today we're focused on a broader range of devices. While the deal is not yet complete, we will welcome to our family Nokia devices and services and the new mobile capabilities they bring us.

As we look forward, we must zero in on what Microsoft can uniquely contribute to the world. The opportunity ahead will require us to reimagine a lot of what we have done in the past for a mobile and cloud-first world, and do new things.

We are the only ones who can harness the power of software and deliver it through devices and services that truly empower every individual and every organization. We are the only company with history and continued focus in building platforms and ecosystems that create broad opportunity.

Qi Lu captured it well in a recent meeting when he said that Microsoft uniquely empowers people to "do more." This doesn't mean that we need to do more things, but that the work we do empowers the world to do more of what they care about — get stuff done, have fun, communicate and accomplish great things. This is the core of who we are, and driving this core value in all that we do — be it the cloud or device experiences — is why we are here.

What do we do next?

To paraphrase a quote from Oscar Wilde — we need to believe in the impossible and remove the improbable.

This starts with clarity of purpose and sense of mission that will lead us to imagine the impossible and deliver it. We need to prioritize innovation that is centered on our core value of empowering users and organizations to “do more.” We have picked a set of high-value activities as part of our One Microsoft strategy. And with every service and device launch going forward we need to bring more innovation to bear around these scenarios.

Next, every one of us needs to do our best work, lead and help drive cultural change. We sometimes underestimate what we each can do to make things happen and overestimate what others need to do to move us forward. We must change this.

Finally, I truly believe that each of us must find meaning in our work. The best work happens when you know that it’s not just work, but something that will improve other people’s lives. This is the opportunity that drives each of us at this company.

Many companies aspire to change the world. But very few have all the elements required: talent, resources, and perseverance. Microsoft has proven that it has all three in abundance. And as the new CEO, I can’t ask for a better foundation.

Let’s build on this foundation together.

Satya

So, what happened to Windows 9?

This one's simple and actually pretty funny.

Nothing happened, **Microsoft never promised us Windows 9.**

In the aftermath of Windows 8, bloggers like myself got caught up with anticipating the next version of Windows to be Windows 9.

Heck the last one was called Windows 8 right?

As talk of the next version of Windows started bubbling up, we all needed a name to call it.

As more and more time passed, conventional wisdom in the technology community was simple. Microsoft was going to call the next version of Windows – Windows 9.

It seemed even more certain because internally some Microsoft documents were being labeled "Windows 9" simply because everyone needed a name for this new OS that was being developed.

On September 30th of 2014, Microsoft almost gave me a fricking heart attack. There was a new name – **the next version of Windows was not going to be called Windows 9.**

It was going to be called Windows 10.

A lot of people have speculated about why Microsoft skipped the Windows 9 name and moved straight to Windows 10.

The most common joke “Because 10 8 9” is horrible.

At an event, when the CEO of Microsoft, Satya Nadella was asked what happened to Windows 9? he answered saying "It came and went."

There was some speculation that it was named Windows 10 because calling it Windows 9 would be confusing for internal developers. This because there are sections of core Windows code where Windows 95 is referenced and there was potential for glitches and mix-ups.

Some people believe it is was Microsoft’s strategy attempt to send customers a message that this new Operating System was in no way related to the very unpopular Windows 8.

There are other rumors out there about why but the bottom line is, the reason for the name change remains a very tightly held secret.

Very few Microsoft executives know what the real no bullshit reason is and they ain’t talking.

Windows 9 was a placeholder that the technology community came up with but Microsoft never promised us that name.

Windows 10 was the official name not just for an Operating System. It was the name of the Microsoft’s ambitions new ecosystem.

Why didn't Microsoft just start from scratch?

One of the questions we are asked all the time is, the early versions of Windows 10 look like a hybrid between Windows 7 and Windows 8.x.

Why didn't Microsoft just start from scratch?

Well, I don't speak for Microsoft but I will give you my thoughts and answer that makes the most sense.

It would simply have taken too long.

For better or worse, Steven Sinofsky (the former Microsoft Windows chief who was behind Windows 8) and CEO Steve Ballmer made a lot of very big bets with Windows 8.

From the look and feel of the "Metro" interface to the very underpinnings of the architecture, Windows 8 changed everything.

It changed not only the Operating System but also changed the way developers and partners created applications for Windows and interacted with the OS.

The idea of trying to unwind all that and also getting ready for a new Operating System within a reasonable timeframe would simply have been too challenging in my opinion.

You also have to remember that Microsoft is a publicly traded company and there is strong scrutiny and expectations from Wall Street regarding the software company's release schedule.

Starting from scratch COULD have caused a massive selloff if investors interpreted the move as a multi-year setback for the company.

It would also have been a MASSIVE credibility hit for Microsoft in the eyes of the development community and partners.

Finally, for better or worse, large software innovation cycles are superfast. Microsoft competitors Apple and Google are continuously releasing new products and upgrading existing products. It's no longer acceptable to spend longer than absolutely necessary developing a product.

For better or worse, Microsoft is going to be slowly rolling back Windows 8 for the foreseeable future but doing it in a slow, thoughtful and deliberate way.

That is also part of the legacy of Windows 8.

What is Windows 10?

Windows 10 is the most comprehensive and exhaustive overhaul of Microsoft's Windows franchise in the history of the company. It is a complete rethinking of Windows from top to bottom.

The most important attribute that sets Windows 10 apart from all the Microsoft Operating Systems that have come before it is that Windows 10 is Microsoft's really big push for the concept of the Universal Application.

This would be an application that would be written once and would run differently based on the device that it was running on.

This is the dream for both developers and for consumers.

- *Developers could write less code and have their program run on multiple platforms.*
- *Consumers in turn could use these new programs across multiple devices and not have to worry about compatibility.*

Microsoft is looking to Windows 10 to transform the entire nature of the Windows franchise.

This Operating System is being designed to run seamlessly across Desktops, Laptops, 2 in 1 systems, Phones, Tablets and all the devices we use from day to day.

The Operating System is being designed as a central hub for Microsoft's version of the Internet of Things (we'll discuss later) and is designed to make up for all the mistakes made in Windows 8.

The User Interface (UI) is very familiar to Windows 7 users but has borrowed some of the aesthetic touches from Windows 8/8.1 as appropriate.

Of course development is still ongoing but from what we see so far, Microsoft is attempting to make this the cleanest, fastest, most secure and most efficient version of their Operating Systems yet.

Windows 10 is designed and architected to be the all-in-one operating system to handle all devices regardless of their type, screen size and function.

A common question we get asked is, what's required to run Windows 10 on a personal computer or tablet etc.

Let's talk about Windows 10 System Requirements.

Windows 10 System Requirements

Here's what we know at this point.

If your PC can run Windows 8.1, it should be able to run Windows 10.

Also, don't forget that Windows will check your system to make sure it can install the preview.

- Processor: 1 gigahertz (GHz) or faster
- RAM: 1 gigabyte (GB) (32-bit) or 2 GB (64-bit)
- Free hard disk space: 16 GB
- Graphics card: Microsoft DirectX 9 graphics device with WDDM driver
- A Microsoft account and Internet access

Some important notes about the Windows 10 Technical Preview requirements

Some PC processors and hardware configurations will not support the Windows 10 Technical Preview, including a small number of older, 64-bit CPUs, and some 32 GB and all 16 GB devices running a compressed operating system.

To access the Windows Store and to download and run apps, you need an Internet connection, a screen resolution of at least 1024 x 768, and a Microsoft account.

The Windows Store in Technical Preview will have many (but not all) Windows 8.1 apps available. (Apps for Windows 10 Technical Preview will not be available for PCs running Windows 8.1 or Windows 8.) Keep in mind that if you install the preview but then decide to go back to Windows 8.1 or Windows 8, you might have to reinstall your apps from Windows Store.

Cortana is currently only available in English (United States). To be able to use Cortana, the country or region for your system must be set to United States, and you also need to have installed the English (United States) version of Technical Preview.

After you install the preview, you won't be able to play DVDs using Windows Media Player.

If you're running Windows 8.1 but haven't installed Windows 8.1 Update yet, you won't be able to install Technical Preview. Try running Windows Update to get Windows 8.1 Update before you install Technical Preview, or you can file instead.

If you have Windows 8 Pro with Media Center and you install the preview, Windows Media Center will be removed.

The preview won't work on Windows RT 8.1 editions.

There is no N edition of Technical Preview, so if you upgrade to Technical Preview from an N edition of Windows, you will no longer be running an N edition.

If you're running Windows 7 without SP1, you can only upgrade to the preview by downloading an ISO file. If you install Windows 7 SP1, you can upgrade to the preview by using Windows Update or by downloading an ISO file.

Languages

Technical Preview is available in the following languages: English (United States), English (United Kingdom), Chinese (Simplified), Chinese (Traditional), Portuguese (Brazilian), Japanese, Russian, German, French, French (Canada), Korean, Italian, Spanish, Spanish (Latin America), Swedish, Finnish, Turkish, Arabic, Dutch, Czech, Polish, and Thai.

How many versions of Windows 10 are there?

Here are the versions I have been able to dig up:

- The version of Windows 10 that we are all playing around with right now in test form is **Windows 10 Desktop**. This will be the version that runs on Intel-based PCs, laptops and hybrid/2-in-1 devices.
- The version of Windows 10 that will be available in test form starting in February 2015 is **Windows 10 mobile** or **Windows 10 for Phones**. That version is optimized to run on ARM-based Windows Phones (from Microsoft and other OEMs), as well as on ARM- and/or Intel-based small tablets, ideally under eight inches in size.
- There's a **Windows 10 "Industry"** SKU for devices like point-of-sales terminals, ATMs and kiosks.
- There will also be a **custom version of Windows 10** inside the Surface Hub — the conferencing system that Microsoft announced last week.
- There's **Windows 10 "Athens,"** which also will work on ARM or X86 cost- and resource-constrained devices. Athens is based on the Windows 10 common core and will support the "Universal Apps" model.
- There is apparently a **different custom version of Windows 10** that will power the HoloLens augmented-reality goggles.

- There will probably be **Windows 10 embedded** versions of the OS that will run inside cars and fridges etc.
- There will inevitably be versions of Windows 10 at the Server Level – I am assuming **Windows 10 Server**.

For consumers, it's not entire clear how many Windows 10 editions Microsoft will make available.

We can assume there will be:

- Windows 10 Home
- Windows 10 Professional
- Windows 10 Enterprise
- Windows 10 Mobile

We'll update these versions as we know more.

How much will Windows 10 Cost?

On January 21, Terry Myerson announced that a free upgrade for Windows 10 will be made available to customers running Windows 7, Windows 8.1 and Windows Phone 8.1 devices who upgrade in the first year after launch.

> *"This is something we think consumers and manysmall businesses will be really excited about, given it is the first time we have offered a free upgrade on this scale.*
>
> *We believe this will allow hundreds of millions of customers to upgrade to Windows 10 soon after launch, create a broad opportunity for our ecosystem partners to drive innovation, and deliver value to all Windows 10 customers."*

This is the cool part; they clarified the support for that upgrade.

> *"Once a Windows device is upgraded to Windows 10, we will continue to keep it current via Windows Update for the supported lifetime of the device – at no cost.*
>
> *We think of this as Windows as a Service, and think that it's remarkable news for many of our customers and partners.*
>
> *As an example, customers running Windows 7 Pro and Windows 8/8.1 Pro, like small businesses, have an opportunity to upgrade to Windows 10 for free in the first year.*
>
> *It would allow them to take advantage of the latest innovation, and enable their devices to stay up to date with latest features and security updates going forward.*

We recommend those customers take advantage of the upgrade within the first year, as soon as it is available."

There you have it folks. It's pretty official – **Windows 10 will be free for consumers if you get on the train when it's released.**

A no brainer – if you're a consumer, you can't afford to miss this offer.

Windows 10 Development and Testing

Microsoft is one of the largest software makers in the entire world.

Their Windows Operating Systems have millions of lines of software code and take thousands of developers' years working in sync to make it work.

Microsoft has (to it's credit) introduced a more collaborative type of product development, which is very unique to the company.

They involve their MILLIONS of users in testing early versions (betas) of the software.

Now the beta software testing process is not unique to Microsoft but what is unique is the scale at which this is happening.

This actually started in Windows 8 where Steven Sinofsky would share very eloquent updates about the very new and different changes that were coming to Windows.

Even though Windows 8 didn't work, even back then I thought (and said) that this was a masterful touch because it fostered a sense of community and made Microsoft fans and tech enthusiasts invested in the process.

Today, millions of users are testing Windows 10 builds and formally giving feedback to Microsoft via an Insider Program.

What is the Windows Insider Program?

The Windows Insider Program is an optional service provided by Microsoft to allow users to experience the next version of Windows before public release.

The program is aimed at early adopters and the 'enthusiast' crowd who enjoy beta testing new software.

Besides just using the software, Microsoft encourages testers to send feedback on their experience through a specialized application in the software which includes ratings and a place to leave notes to the Windows development team.

The Insider Program was announced on September 30, 2014 during Microsoft's Windows 10reveal.

The initial release of Windows 10 through the Insider Program was aimed at enterprise users, although anyone can download the OS to their machine without cost.

What is the Windows Insider for Phones Program?

Windows Insider for phone (previously known as Phone Insider) is also a new application released by the Microsoft Corporation to the public in early January 2015.

The app is for Windows Phone 8.1 devices and was previously an internal application for carrier and OEM partners for testing new versions of the Windows Phone OS.

Windows Insider is assumed to be an extension of the Windows Insider program for Windows 10.

Windows Insider for phone appears to be analogous to the Preview for Developers program, which lets users download the latest official versions of the Windows Phone OS.

However, Windows Insider is thought to let consumers try pre-production versions of future iterations **of the mobile O**S, serving as proper beta testers.

Users will likely also give feedback to Microsoft about the OS through an app to collect data, ratings, and user comments. That feedback goes back into improving the OS for a final release.

The Bottom Line

Through the Windows 10 Insider program, Microsoft had 1.5 million documented testers for the Windows 10 Technical preview version by December 17, 2014.

That number was 1.7 million January 21, 2015.

Microsoft announced that they have received 800,000 pieces of feedback on some around 200,000 topics.

Technically, this extensive testing environment should help the company produce better and more productive software that should satisfy the consumer.

Finger crossed right?

Windows 10 Product Family

Microsoft built Windows 10 as their first and revolutionary step toward what will be a new generation of Windows operating systems.

Windows 10 is getting ready to run on almost everything that needs an operating system. The scope of this OS is incredibly ambitious with plans to have it run devices anywhere from tiny devices on the Internet of Things to massive servers in enterprise data.

Due to the varying types of devices Microsoft is building this OS to support, Windows 10 is being built with levels of adaptive intelligence.

That means the OS will be smart enough to detect the nature of the device it is running on, the changes that take place on that device and take actions based on that.

The OS will be intelligently able to switch user interfaces to best match the current device or its current hardware configuration. We will talk more about that (Continuum) later.

In the following section, we take a look at some of the form factors we expect Windows 10 to work on.

Windows 10 Desktops

Windows 10 will of course work on desktop computers.

When we say Windows for desktops, it is commonly meant to include desktops and laptops computers.

Even though there is a big shift to mobile devices, desktop computers will run Windows 10 and have a lot of flexibility.

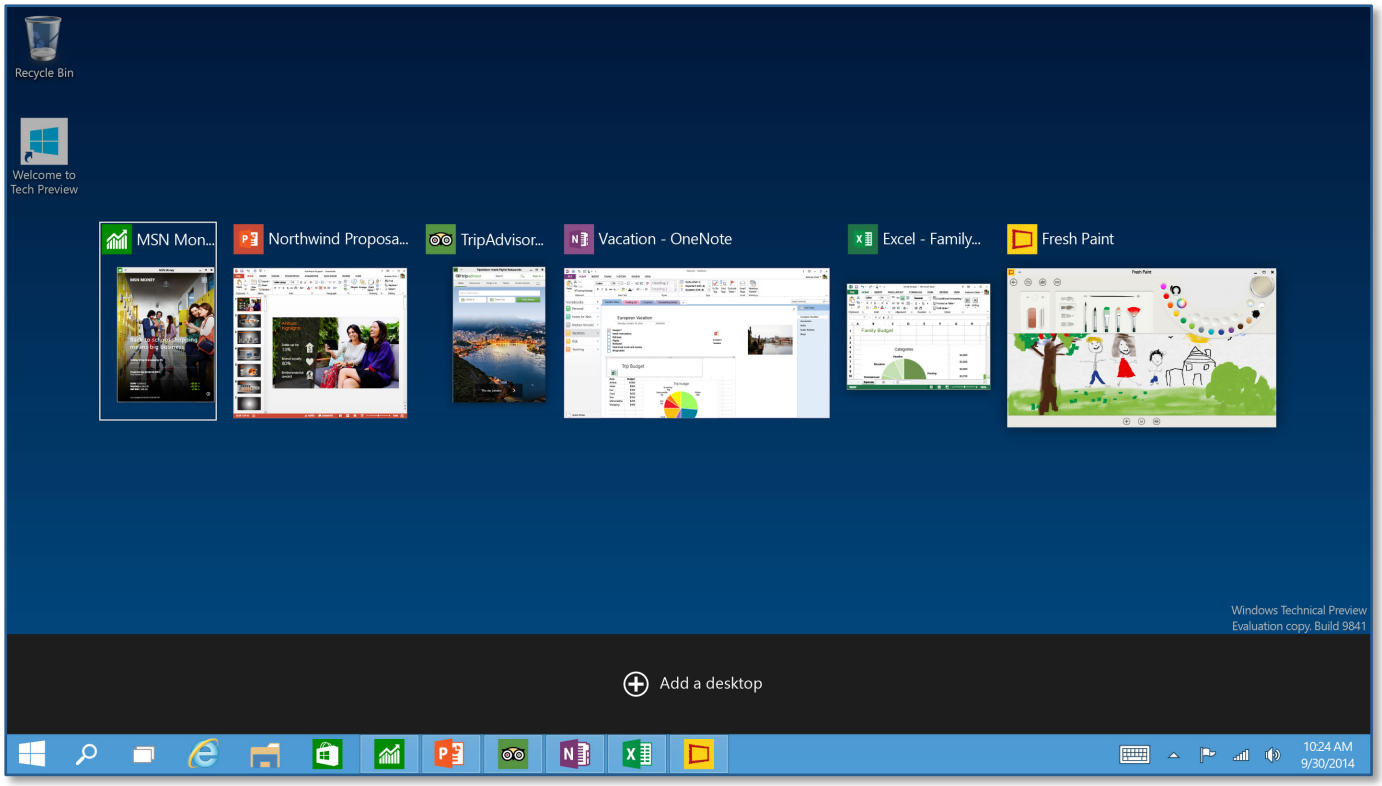
Windows 10 brings back a newer improved Start Menu and will mix the traditional Windows 7 user interface with a more refined variant of the Windows 8 interface

A new enhanced Snap view is introduced in Windows 10 in which the user can see all the running windows in a snap view.

In addition, you will be able to see Windows side by side or in quadrants with many options.

You can have a Window in half the screen, another in one quarter of the screen and all others in the remaining quarter…and so forth.

A new Task view application appears in Windows 10, which enables you to see and switch between all the running windows or desktops.



In Windows 10, you can run more than a single desktop simultaneously and easily switch between them.

With multiple desktops, you can spread out the various projects that you're working on, such that each project is on separate desktop.

Every desktop can be seen from a multi-pane viewer and you can switch back and forth between virtual environments.

When you need to jump to from one task to another, you just switch desktops. Then, when you are ready to go back to your previous task, you just switch back to that desktop, and everything that you were working with is right there on the screen waiting for me.

It's a very efficient system, and it definitely feels organized and productive.

Windows 10 and 2 in 1 devices

Two in one devices are a new category of device that Microsoft started.

The Microsoft Surface was the first two in one device that could be used as a full laptop on one hand and then detached to be used as a tablet.

These devices that are designed to give you the power of a laptop and the mobility of a tablet in a single device that lets you switch back and forth between the two options to work the way you want, whenever you want.

Windows 10 offers both user interfaces for this situation so that when you connect your keyboard and mouse unit, it switches to the laptop mode and similarly when you disconnect it, it switches to switch to the tablet mode.

This makes it a complete tablet when you need it and a complete laptop when you don't, making your device more powerful and helpful in exactly the way you need it at the exact time you need it.

Windows 10 Tablets

A traditional tablet is a PC that has a touch screen for input but no keyboard nor mouse.

Microsoft designed a special version of Windows 10 for devices with screen size smaller than 8 inches. They are offering another version for larger tablets.

In tablets, user uses his or her fingers or may be a stylus pen to point to somewhere on the screen, tap and perform input commands.

Hardware makers who create smartphones and tablets that are smaller than 9 inches will get to install Windows Phone 8.1 or Windows 8.1 for free.

That means all Windows Phone OEM makers will get the OS for zero, as will PC makers who create tablets that are similar to Dell Venue Pro 8. Tablets that are larger than 9 inches won't be eligible for the free Windows 8.1 OS.

This move by Microsoft is clearly designed to get Windows installed in more devices, similar to how Google makes Android free for use in third party smartphones and tablets.

It remains to be seen if there will be any additional conditions to this deal, such as licensing Microsoft apps like Skype and Bing for use in those smaller hardware products, but this will likely be a "win-win" for both Microsoft and device makers.

All Windows 10 versions are sharing the same foundation; however, each of the versions is designed to make the user experience better on the devices it runs on.

Windows 10 for Phones

There will be a version of Windows 10 for phones called “Windows 10 for Phones”.

When we say Phones, we really mean smartphones and phablets both of which are just powerful small PC’s at this point.

Windows 10 for Phones takes into consideration that the device is usually handheld, needs a long life battery and needs to manage contacts, calls, calendar and email.

In addition, the OS helps the phone access the Internet, handle GPS navigation and offers synchronization with other devices like PCs.

All this is usually done with a touch screen as the single input method.

The phone version of Windows 10 (obviously) pays more attention to the phone user needs while optimizing the interface and the operation of the phone devices.

Windows 10 Embedded

Embedded systems are an expression that usually defines a computer system that is dedicated for a special function or task within a larger system, which could be a mechanical or an electrical system.

Often the embedded systems will have real-time computing capabilities. Such systems are hardware based on the microcontrollers, which have their dedicated standard class of processors that are the Digital Signal Processors (DSP).

Here are some examples of embedded systems:

- The bar code scanners in the markets cashier sections, which scan the product bar code and instantly updates the customer invoice adding the item and its price, besides it can update the market inventory system to deduct the quantity of the purchased item from the inventory list.
- The digital controller which shipping companies use to track shipment delivery and get a digital signature of the receiver.
- The robotics in factories that perform special tasks.

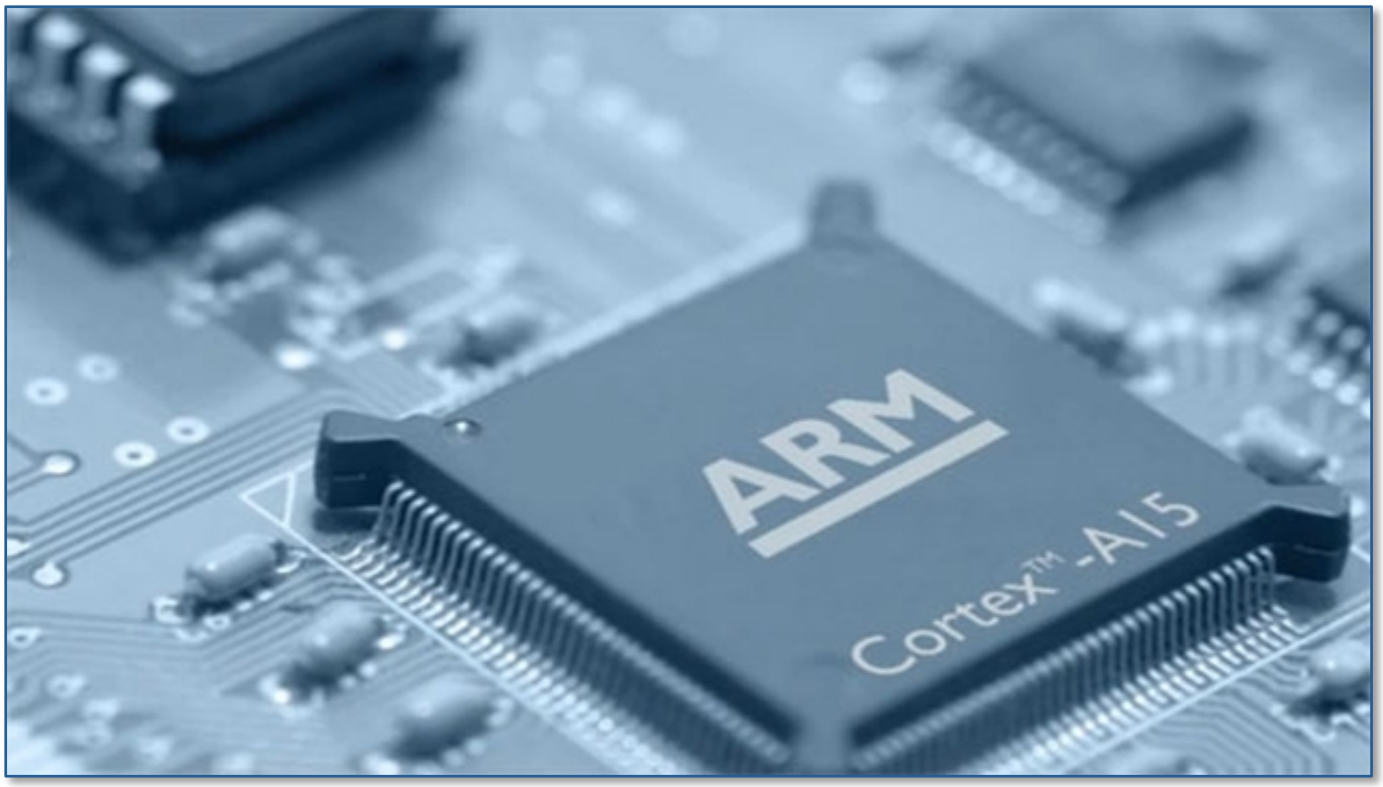
Some of these systems do not have screens at all and others do not need any kind of user inputs.

Such embedded systems will also need an Operating System to handle their operation.

Windows 10 will be ready to run them with its embedded systems version.

There is a dedicated Windows 10 version designed specially under the main Windows 10 foundation to run these systems.

Windows 10 for ARM Devices/Windows RT?



ARM devices are those devices that use computer processors based on a reduced instruction set computing (RISC) architecture developed by the British company ARM Holdings.

Such processors use fewer numbers of instructions, which means that they are simpler in design, and produce less heat, consume less power and reduce costs than the normal PC processors.

With these optimizations and reductions, ARM processors are offering highly demanded features for light, mobile and long lifetime battery powered devices; including smartphones, laptops, tablet and notepad computers in addition to other embedded systems.

Windows on ARM has not been universally popular. When Microsoft first announced Windows ARM support about three years ago, the prospect of Windows running on ARM processors piqued many people's interest, particularly around what software it would be able to run, and what hardware it would be able to run it on.

That interest rapidly waned when it landed in users' hands. Windows RT, as Windows on ARM was branded for its release, could only run new-style touch friendly Metro applications, which were few and far between.

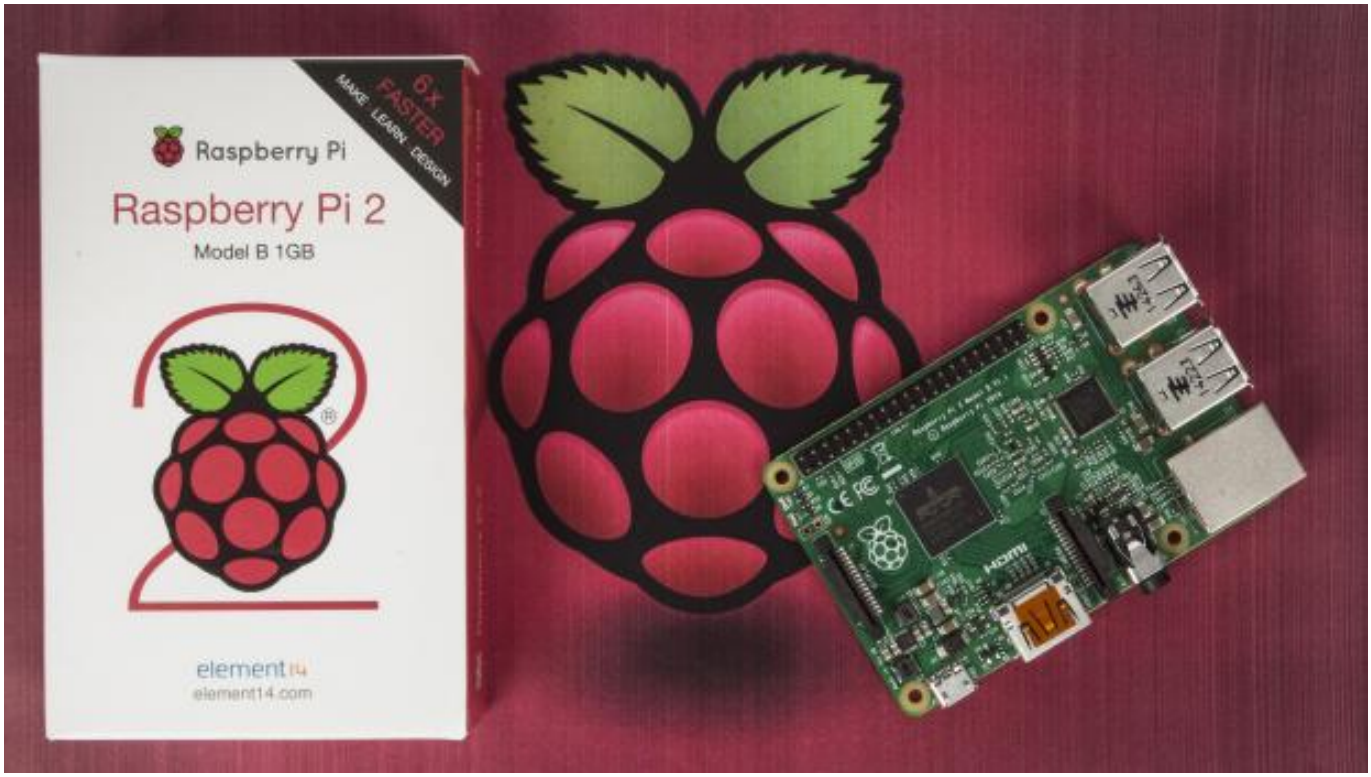
The extensive body of traditional Windows applications built for x86 processors was, not entirely surprisingly, off limits.

With Intel forcing down the price of x86 tablets through heavy subsidies for its Atom processors, the limited appeal of Windows RT—"Windows without Windows software"—was further diminished.

Microsoft has quietly confirmed that it will stop producing Surface 2's and it's other ARM tablet: the Lumia 2520, which Microsoft inherited when it bought Nokia's devices division.

On top of all this, these tablets are apparently not on track to receive Windows 10.

While Microsoft has said that some Windows RT devices will receive some kind of software update and that they'll get some Windows 10 features, exactly which features and when is presently a mystery.



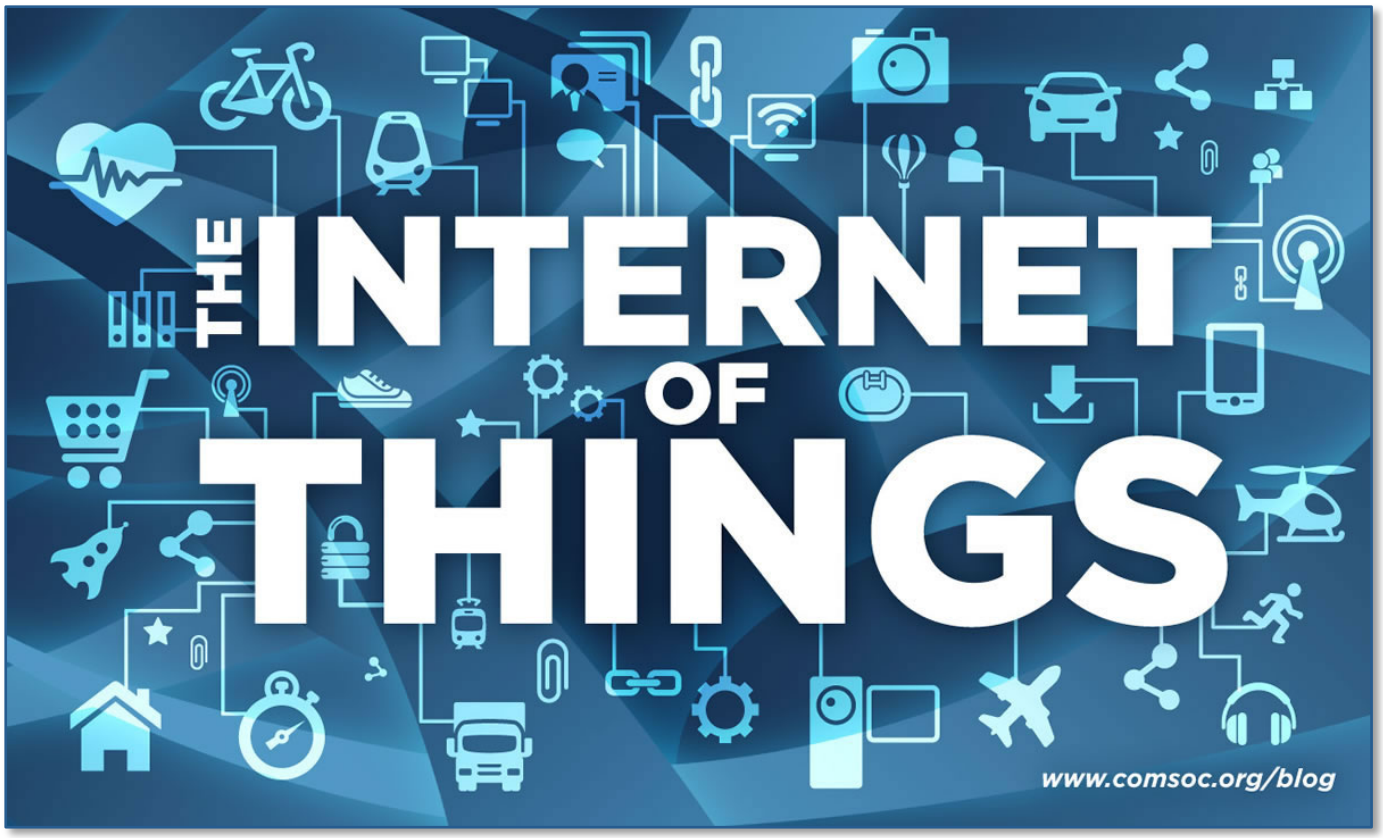
Now the Raspberry Pi 2 however is a second generation of ultra-cheap ARM computers packed full of ports and connectivity.

The Pi 2's upgraded processor opens up more operating system possibilities. One of these is Ubuntu for ARM. Another is Windows 10.

The $35 machine will run Windows 10, and Microsoft has confirmed that the operating system will be free.

Supporting the Pi 2 means that Microsoft is (technically) continuing to support Windows on ARM.

Windows 10 and the Internet of Things



The latest question I have been getting is, what is the Internet of Things and how does this all fit around Microsoft and Windows 10?

I'll take some time and try and make it simple.

What is the Internet of Things?

We in IT enjoy creating these bullshit acronyms don't we? This one is (however) pretty interesting.

Gartner have a pretty interesting description.

According to Gartner, The Internet of Things is:

> *…the network of physical objects that contain embedded technology to communicate and sense or interact with their internal states or the external environment.*

Let's try and think of it another way.

The Internet of things is comprised of all devices (excluding PCs, tablets and smartphones) that can interact with themselves or other devices typically via the Internet.

Some examples would be:

- Point of Sale devices
- ATM's
- Medical Devices
- Handheld scanners
- Manufacturing equipment etc

and much more..

As the industry continues to breakthrough with smaller and more powerful chips, it's becoming more and more possible to "enable" devices that typically were simple machines.

A short example:

A great example would be your refrigerator. In the future, fridges will have more "intelligent" chips and may even be connected to the Wi-Fi network in your house.

The big picture here is that connecting more devices allows for better co-ordination and efficiency.

Using the fridge example, in the future, your fridge will be able to send you an email alerting you to the fact that a component seems to be faulty and you should probably call a repairman.

Heck it may even create the email service request and just require you to approve it so it can directly notify the vendor for you.

Today, without this "intelligence", the part in your fridge goes bad and you have to call a repairman in to diagnose what is wrong and then to try and fix it.

This is way more expensive and inefficient.

So the big idea here is having as many devices connected and working more efficiently for humans (until SkyNet becomes self aware and then…well you know the rest) :-).

Why is Microsoft interested in the Internet of Things?

Well because the company loves humanity and want only the best for us.

"IOT PRODUCT AND SERVICE SUPPLIERS WILL GENERATE INCREMENTAL REVENUE EXCEEDING $300 BILLION"

Umm… no. While all that may be true, it's all about the money.

From Gartner again:

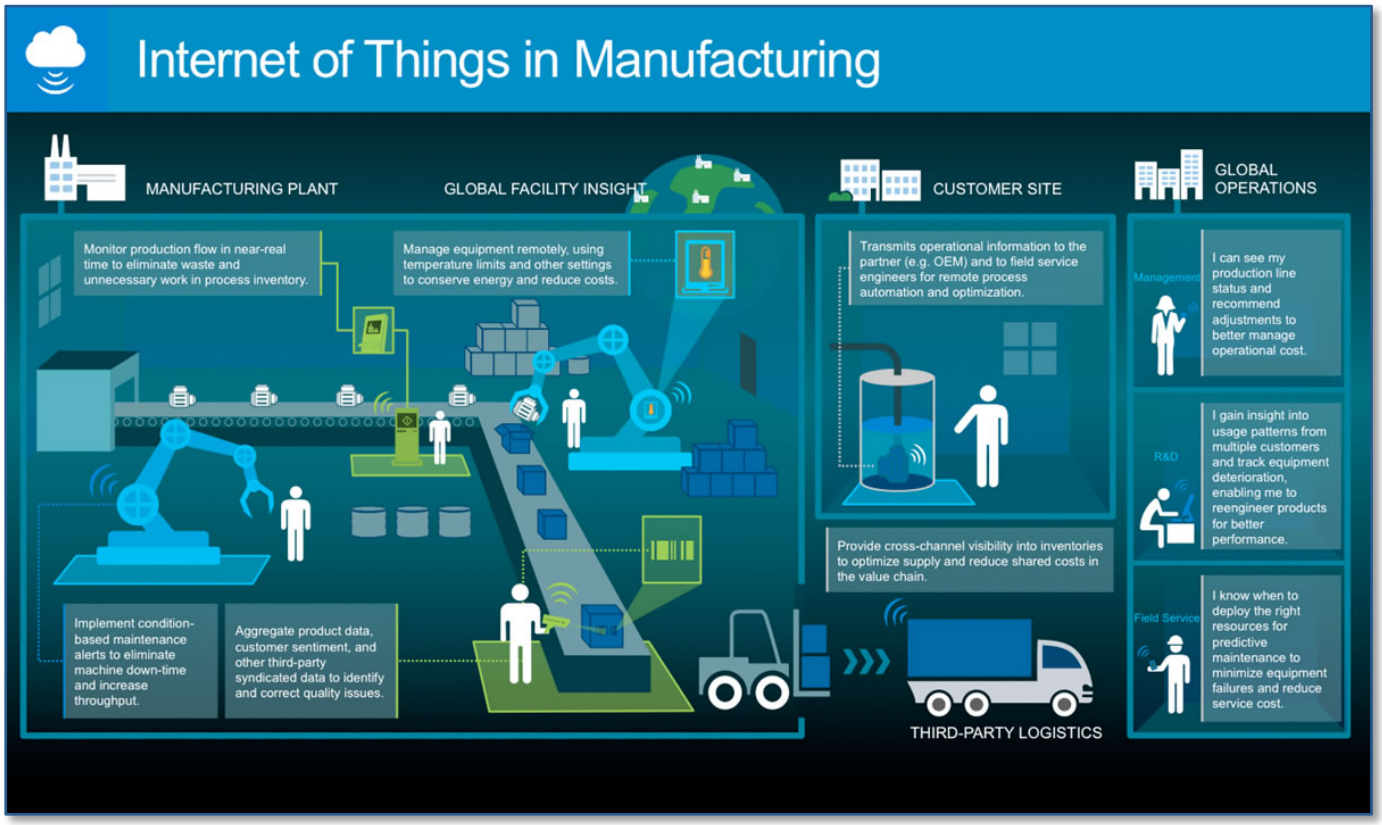
> *The Internet of Things (IoT), which excludes PCs, tablets and smartphones, will grow to 26 billion units installed in 2020 representing an almost 30-fold increase from 0.9 billion in 2009, according to Gartner, Inc. Gartner said that IoT product and service suppliers will generate incremental revenue exceeding* ***$300 billion****, mostly in services, in 2020. It will result in* ***$1.9 trillion in global economic value-add*** *through sales into diverse end markets.*

IOT is meant to be the next really big thing in IT.

Here's why in simple terms.

Above, we used the example of a fridge and how an intelligent fridge could save you as a consumer several hundred (or even thousand) dollars over the lifetime of that device. The scale and the potential for savings is a lot bigger.

Here's a slide showing the opportunity for the Internet of Things in Manufacturing:



As you can (maybe) see from the diagram above, having intelligence in more parts of the supply chain makes the manufacturing process way more precise and efficient.

More efficient = reduction or savings in $$$.

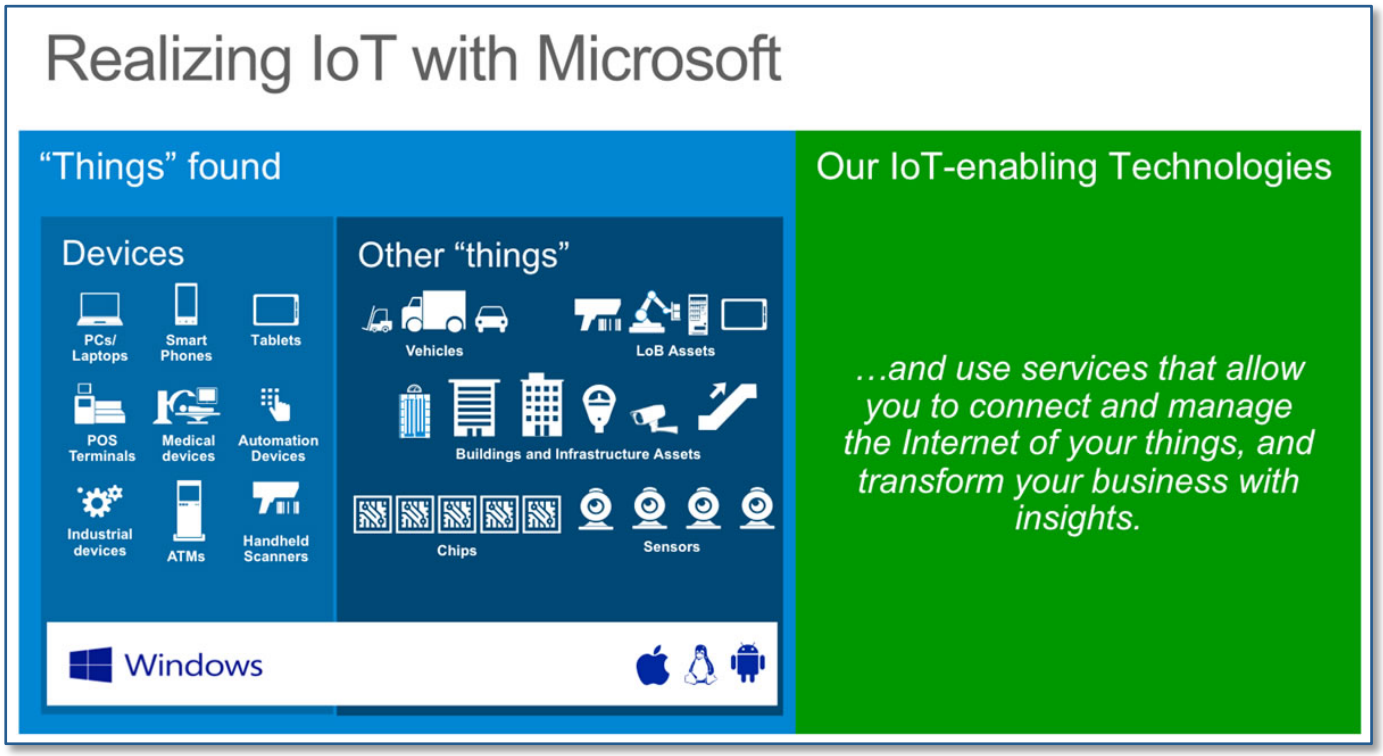
Reduction or savings in $$$ = more profits for companies.

As Gartner said (can't believe I said that), we're looking at hundreds of BILLIONS of dollars in savings and profits here.

How will Microsoft be involved in the Internet of Things?

Great question.

As you can see in the next slide, Microsoft wants to be smack bang in the center of it all.



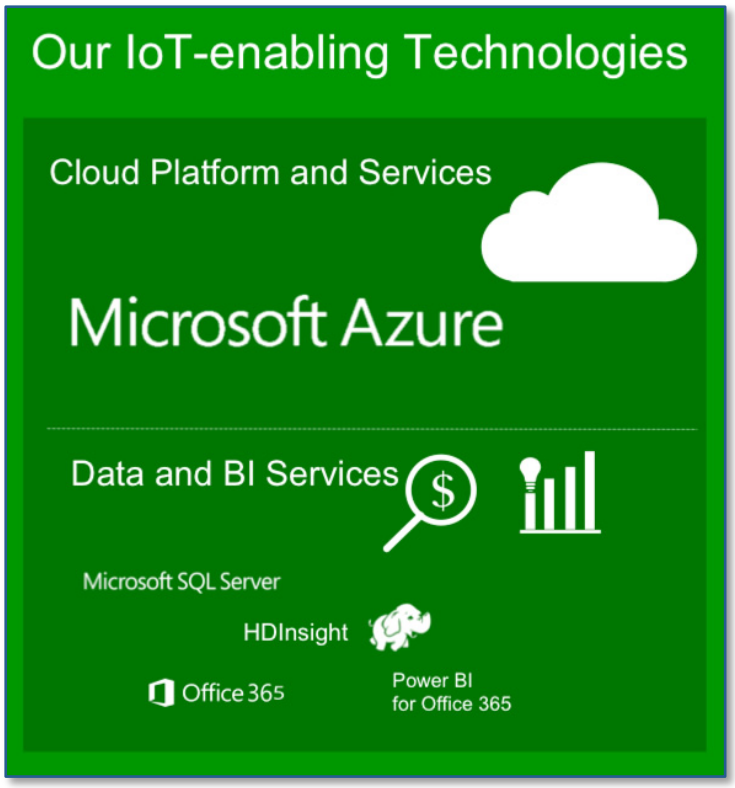
This multi-billion dollar opportunity will need leadership and Microsoft is one of many companies scrambling to be THE platform that can tie the Internet of Things together.

Microsoft is working hard to create a suite of tools that will enable companies to connect and manage these components.

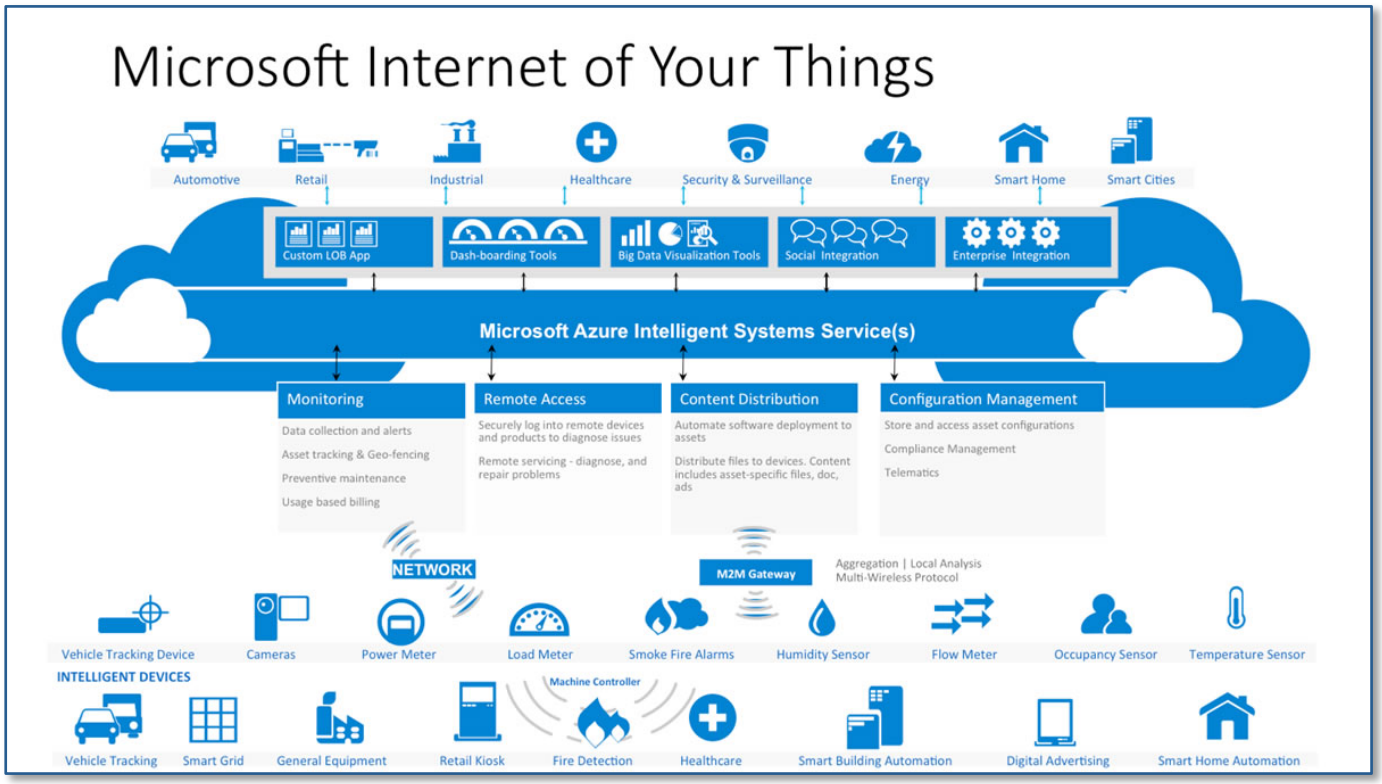
What are the Microsoft Internet Of Things Components?

The major components in the Microsoft IOT platform will be:

- Azure
- SQL Server
- Office 365
- Business Intelligence tools for Office 365
- Windows 10



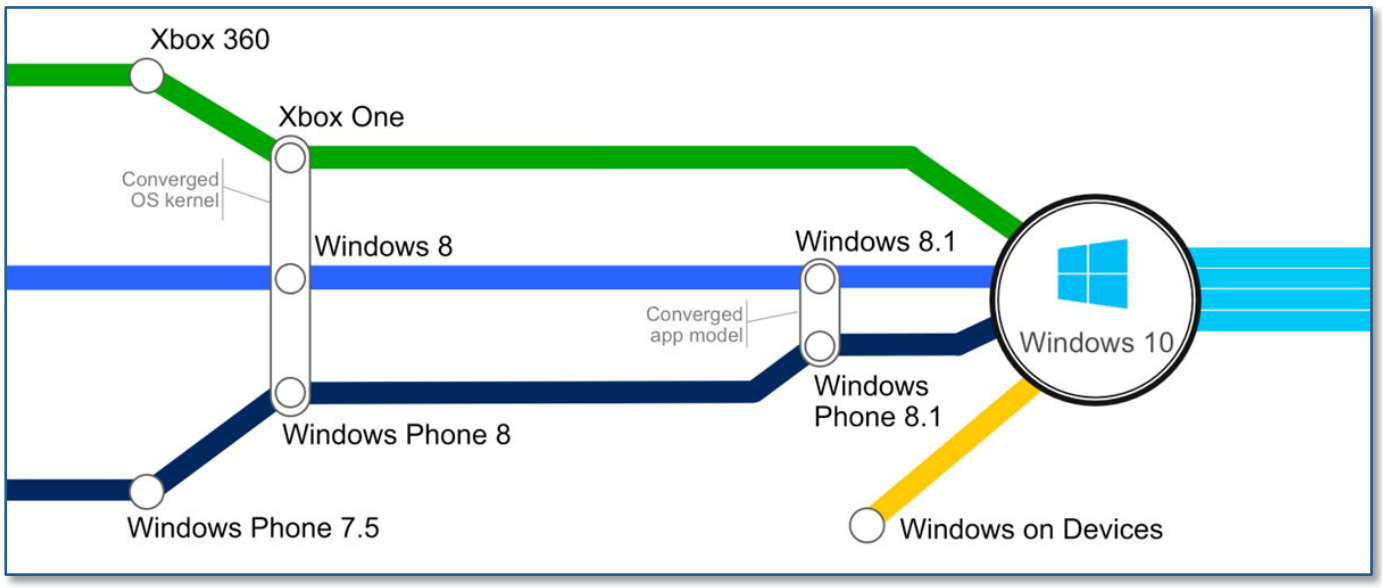
As you can see from the diagram below, Microsoft has really thought this through and has plans for each industry and vertical.



What part will Windows 10 play in the Microsoft Internet of Things?

Windows 10 is part of a grand plan to streamline communication among Microsoft IOT components.

As we have said ad nauseam, Microsoft will be looking to unify a lot of components with the latest version of Windows.



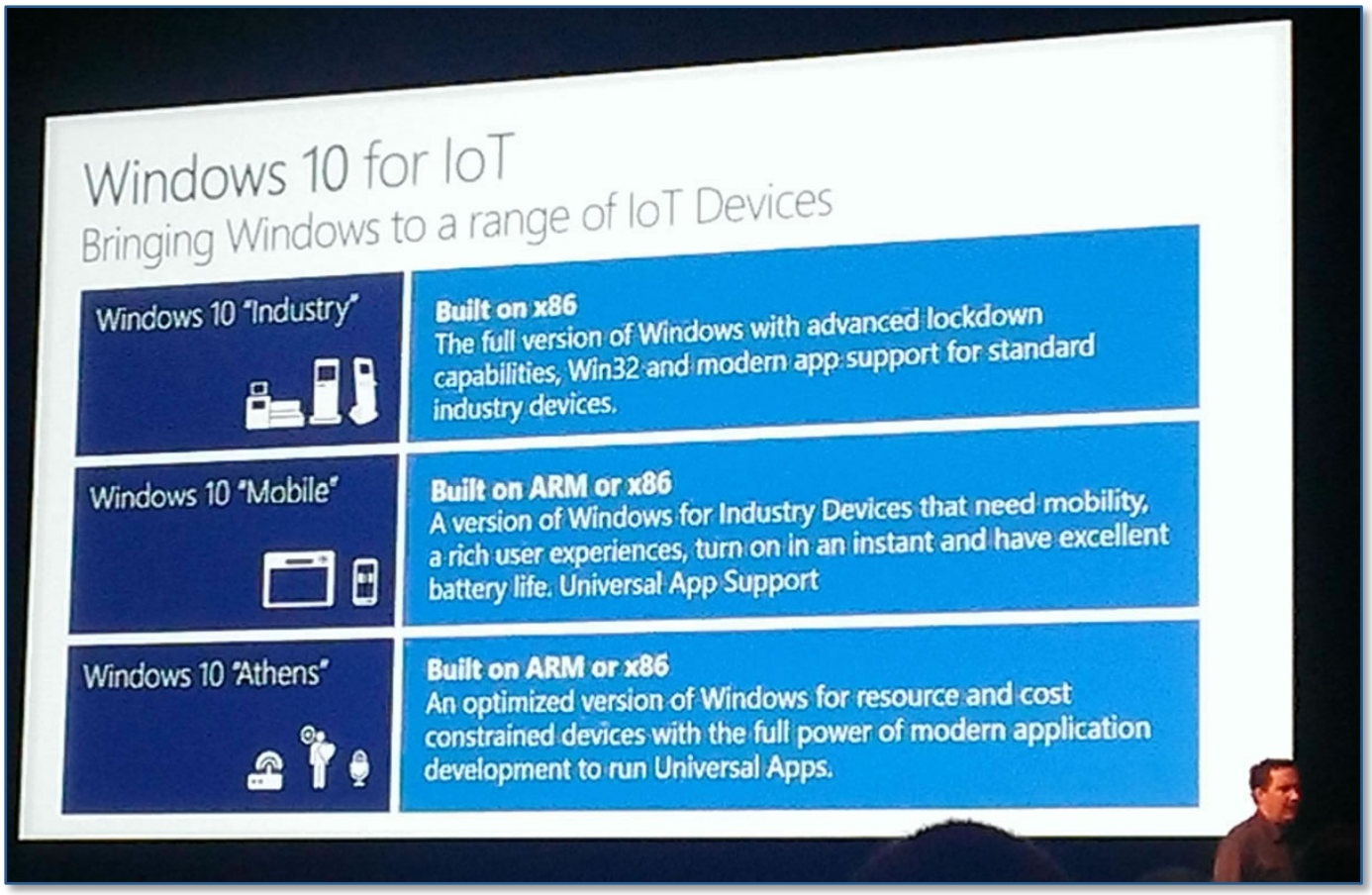
As you think about how many (non PC, Phone or tablet) devices are out there, the scale of the opportunity becomes apparent and Microsoft will be creating various versions of Windows 10 for some of these devices.

During the Gartner's Symposium/ITxpo conference, which took place in October 2014 and held Orlando, Florida, USA, Microsoft CEO Satya Nadella mentioned how Windows 10 was re-architected to produce a new generation of Windows operating systems that will act as the central piece in the integration process of things through the Internet of Things.

He shared Microsoft's vision that the new operating system would be the best tool to handle efficiently operating things together in the Internet of Things implementations.

Windows is no longer just monopolized for computers like laptops, desktops, tablets and even phones; Windows 10 will be the central platform to efficiently connect and run all things together in an integrated fashion.

Nadella explained that Microsoft designed Windows 10 as a new unique OS that is capable of efficiently handling the computerizing of all such things, connecting them, getting data from and analyzing such information then presenting it in a useful manner to those who shall benefit from.



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Mr. Nadella also talked about how Windows 10 will be able to run efficiently on hardware poor devices with the minimal hardware resources and similarly will run on powerful and huge hardware systems.

The bottom line

The Internet of Things is new and exciting.

There is a rush by major IT companies to create a platform for the connection and management of as many devices as possible.

Whoever can get a large piece of that platform will make billions and with Windows 10, Microsoft is definitely in the running.

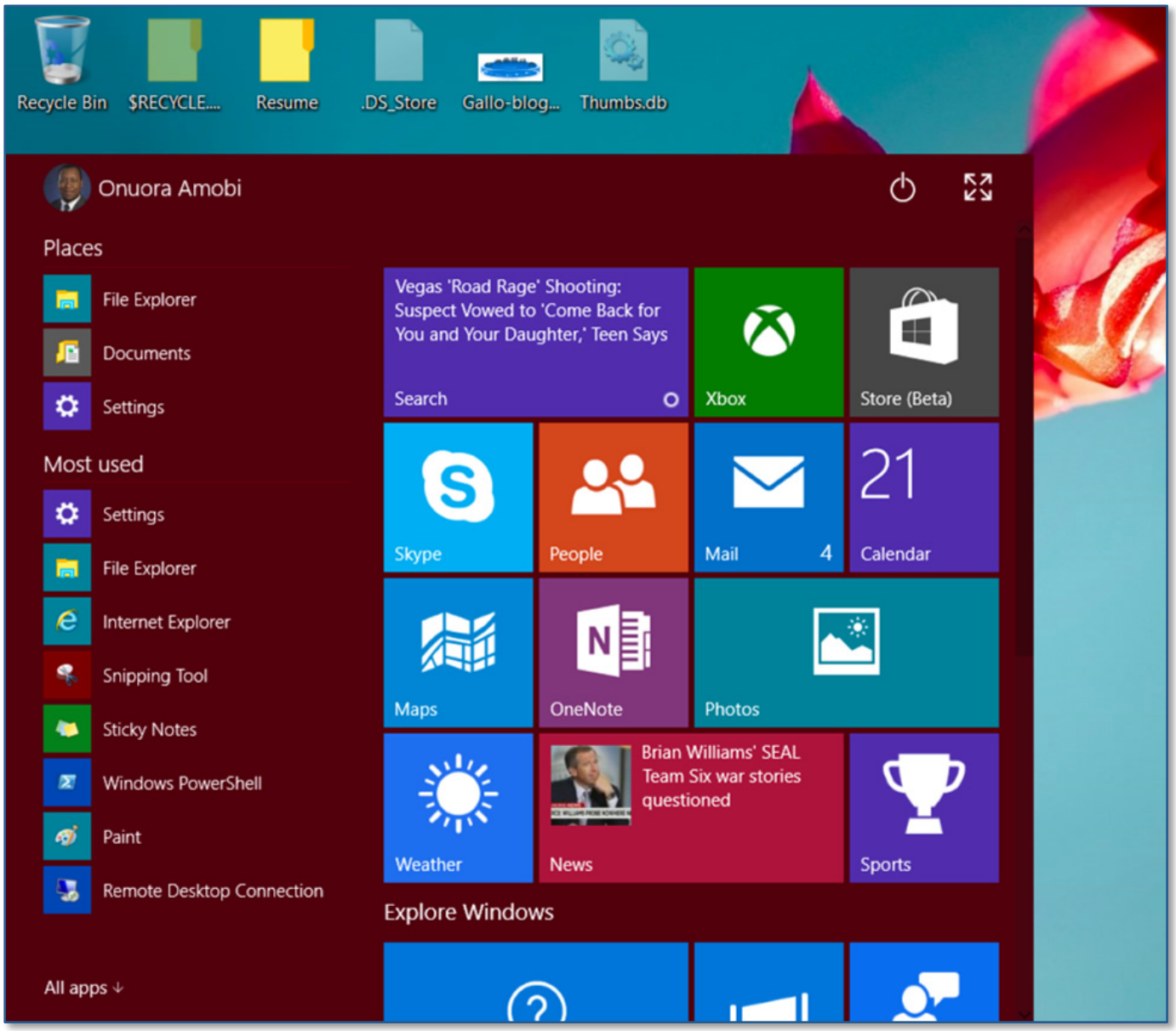
Windows 10 Features

Now obviously at the time of this writing, the Microsoft Windows development team is working it's ass off trying to build something special for us and we're learning new things about what they're doing daily.

Shameless Plug ***You can get daily Windows 10 News and Update here*****.**

Let's take a look at some of the stuff we do know is being baked into Windows 10.

The New Start Menu



So much to unpack here but let's get started.

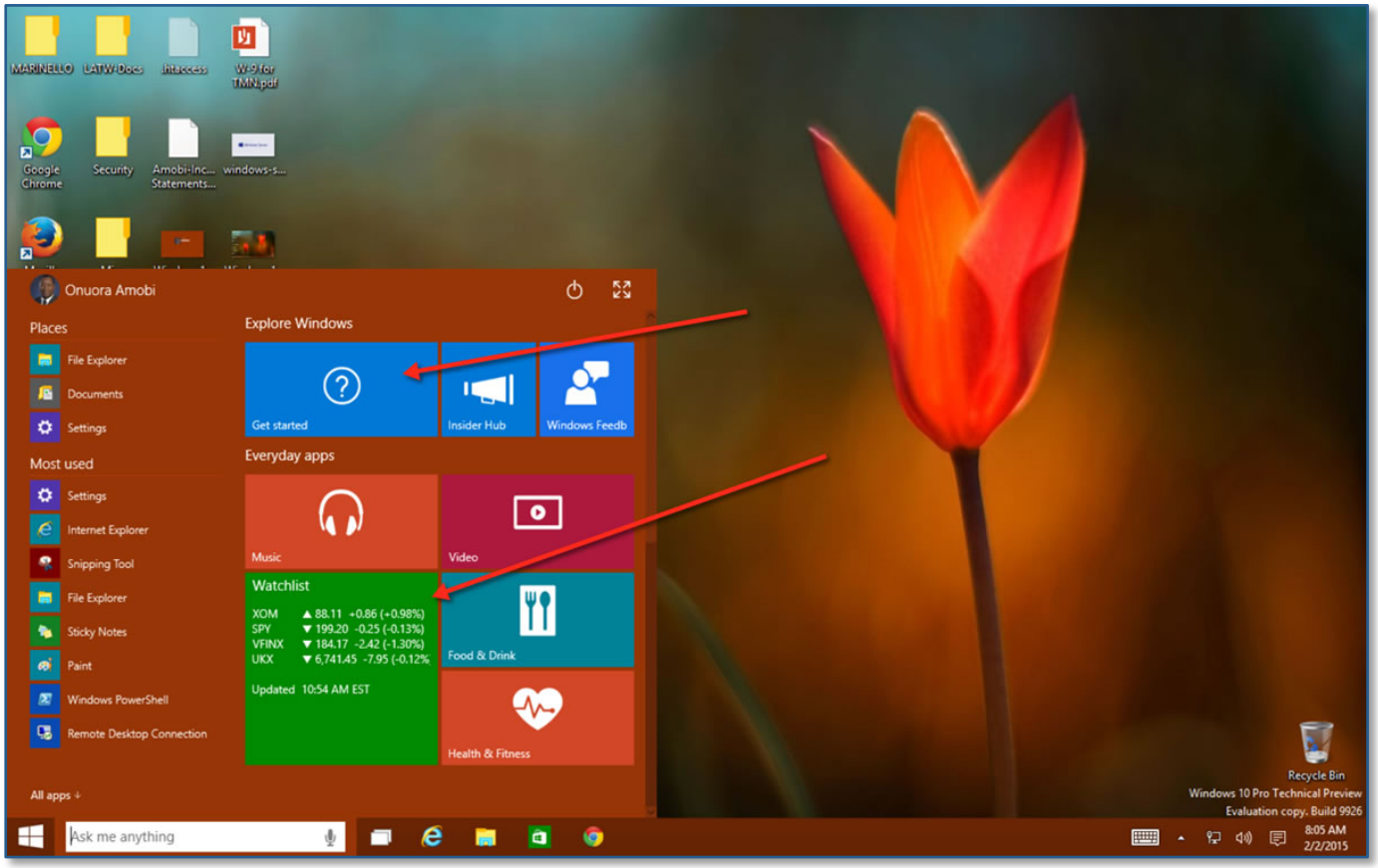
There's your username and avatar at the top left. Very well done so far.

Below that there's a Places section that has File Explorer, Documents and Settings.

Below that there's a Most Used section that has Settings, Internet Explorer, Snipping Tool, File Explorer, Sticky Notes, Paint, Remote Desktop Connection and Windows Powershell.

The image above shows the stuff on my menu but this will vary based on the stuff you use the most.

Next we have the Windows 8 looking section to the right with Live Tiles that you can also configure.



There's an Explore Windows section here with a Get Started, Insider Hub and Windows Feedback section. Once Windows 10 RTM's, this might be gone.

Next there's an Everyday Apps section, which also has a live tile selection of more casual applications.

Finally, you can click on the expand icon on the top right of the Start Menu to make it a full screen menu.

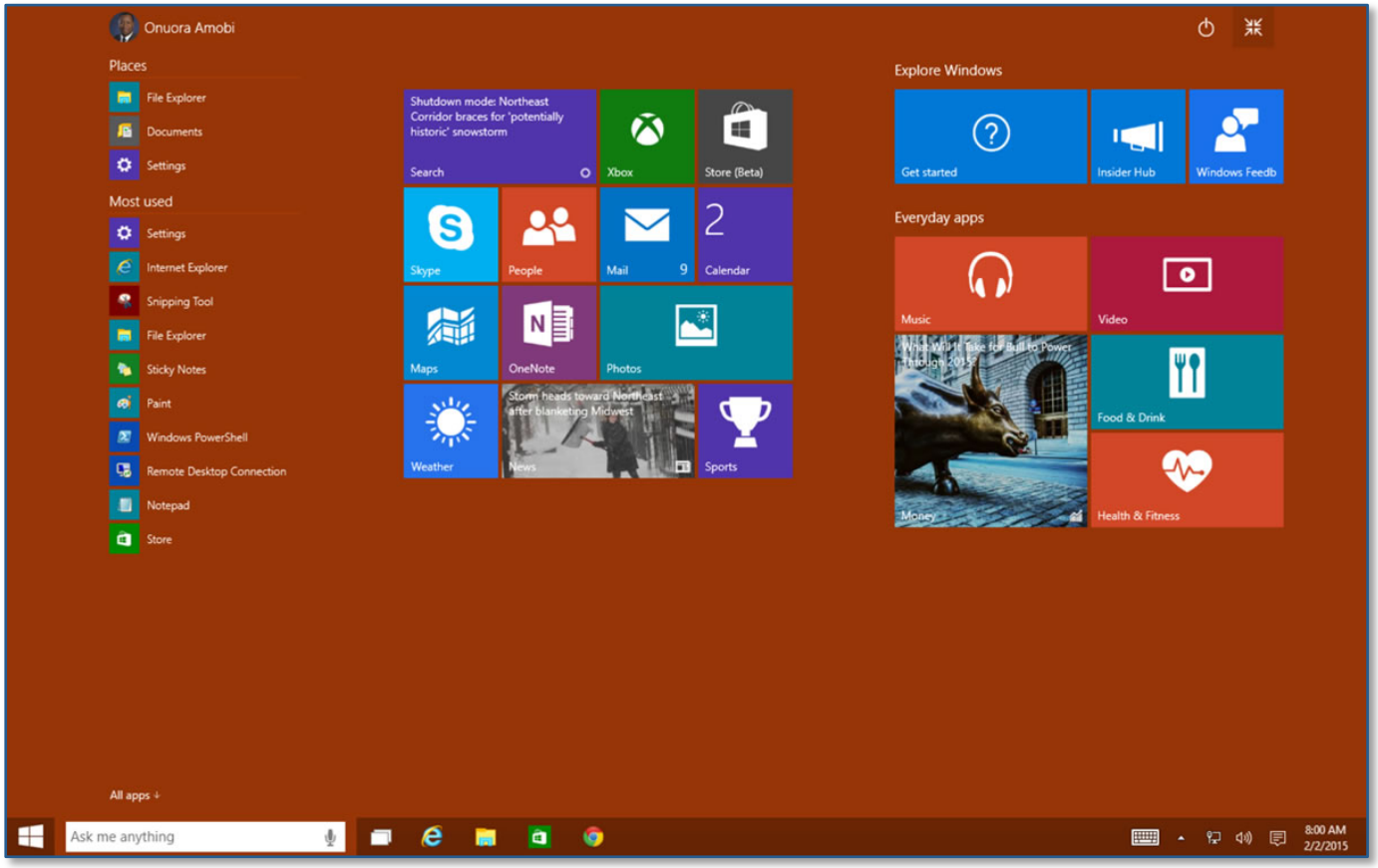


Figure 4 - Full Screen Start Menu

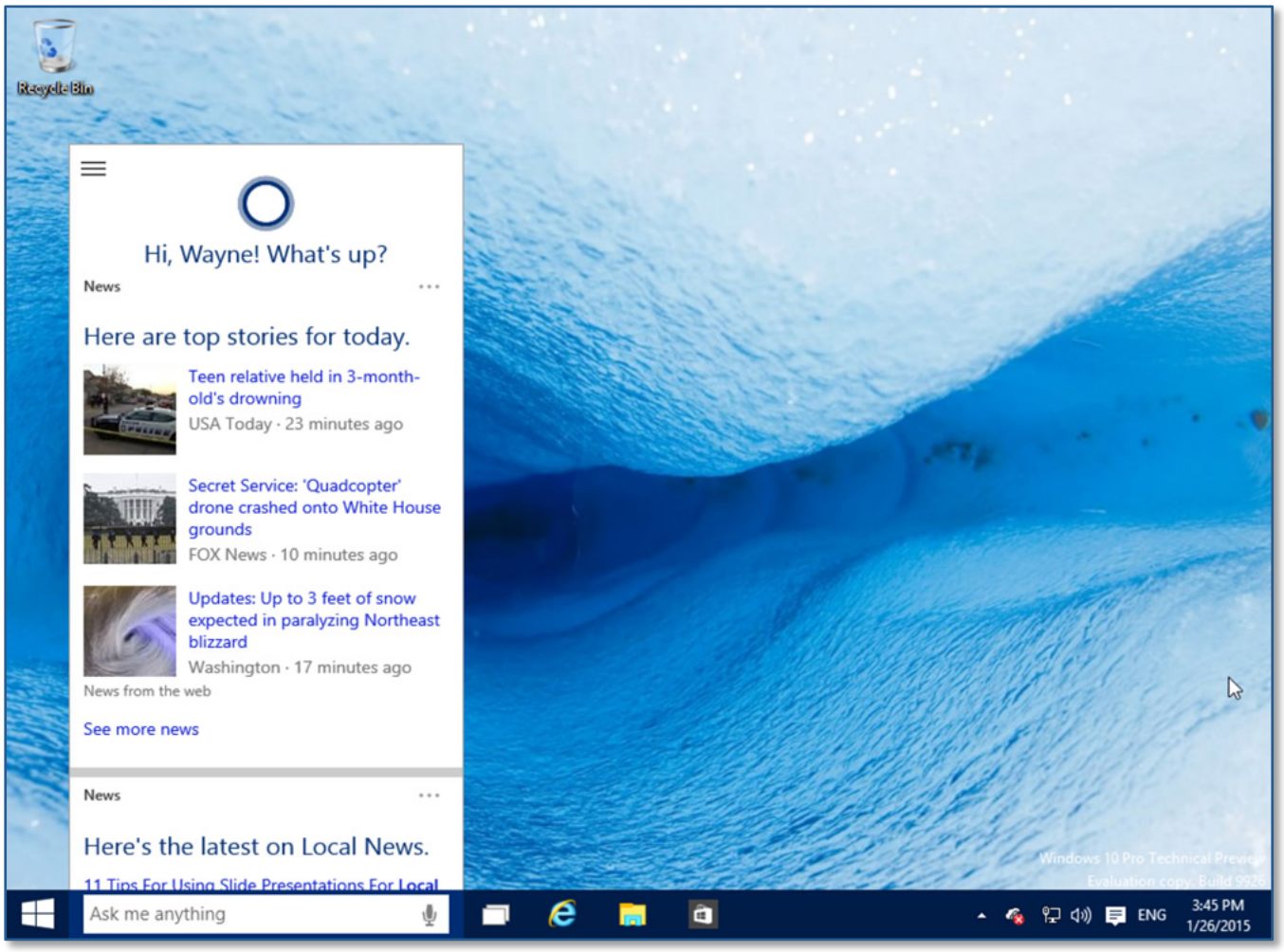
Now the full screen view just arranges the Start Menu proportionally and horizontally across your screen.

On the bottom left, there's an **All apps** link. Click on that and it produces an alphabetically ordered list of your apps on the left.

This is all based on the current (as of this writing) build 9926. I'll update this as material changes occur in the UI.

Now, let's take a look at Microsoft's new virtual assistant and secret weapon – Cortana.

Cortana – a New Virtual Assistant



Windows 10 is also revolutionary because Microsoft are embedding a virtual assistant into the fabric of the Operating System.

Cortana will be embedded into almost all versions of Windows 10, including desktops, laptops and tablets and more.

Cortana is designed to be a digital assistant to help you with easier access to files, apps and more.

Cortana can recognize natural, free form voice prompts and can answer complex questions via thorough and detailed Bing integration. This includes questions are like the current weather status, streets traffic conditions, biographies and sports matches scores to name just a few.

Heck, Cortana is even being used to make predictions based on Bing's algorithms. Pretty radical stuff.

Cortana can also set reminders and launch apps for you as well as offer you local restaurants and attractions recommendations.

In addition, Cortana has a "Notebook" where it keeps personal information about the user; like interests, location, reminders and contacts.

From this dataset, Cortana is able (over time) to establish trends and patterns of your user behavior.

Now you have the flexibility and ability to manipulate this data in order to keep control over the privacy settings. You can also specify which information Cortana can collect and store and delete the Notebook information that you think Cortana should not know.

Microsoft is ultra aggressive about getting Cortana into as many devices (cross platform) as possible. **While I have my own theories about why**, what's important is that this has the potential over time to change the way we work and play.

The concept of a virtual assistant has been on the edge of our consciousness forever. Microsoft it seems is on the verge of actually making it happen.

Continuum

So, what is continuum? This is a simple one.

During it's January 21 event, Microsoft demonstrated the "continuum" feature in Windows 10.

Continuum is designed to adapt Windows to the form factor of the hardware it is running on.

As an example, let's talk about the Surface Pro 3.

When the tablet is connected to its keyboard cover, the Surface Pro 3 acts as if it is a laptop, which it technically is.

Then, as soon as the keyboard is removed, a small icon appears in the lower right of the screen, asking whether you would like to activate tablet mode.

Doing so changes all of the apps to full screen, making icons slightly larger and allowed users to access the Start screen a la Windows 8, albeit much updated.

As soon as you reconnect the keyboard, the device offers to revert back to its original mode.

You also have the ability to let Windows do this automatically without asking when you change form factors.

DirectX 12

What is DirectX?

DirectX is an application program interface (API) for manipulating graphic images and multimedia effects in applications, games and web applications in Microsoft's Windows operating systems.

Windows 10 and DirectX 12

According to Microsoft statements, DirectX 12 will introduce a much better, faster and more efficient threading than the five-year-old DirectX 11.

In theory, this should give developers more console-like “closer to the metal” access to the graphics processors.

In short, DirectX 12 can offer much better performance and Microsoft says that it will save up to 50 percent of the power consumption under the proper conditions.

DirectX 12 also introduces the next version of Direct3D, the graphics API at the heart of DirectX.

Direct3D is one of the most critical pieces of a game or game engine, and Microsoft has redesigned it to be faster and more efficient than ever before.

Direct3D 12 enables richer scenes, more objects, and full utilization of modern GPU hardware. And it isn't just for high-end gaming PCs either – Direct3D 12 works across all the Microsoft devices you care about.

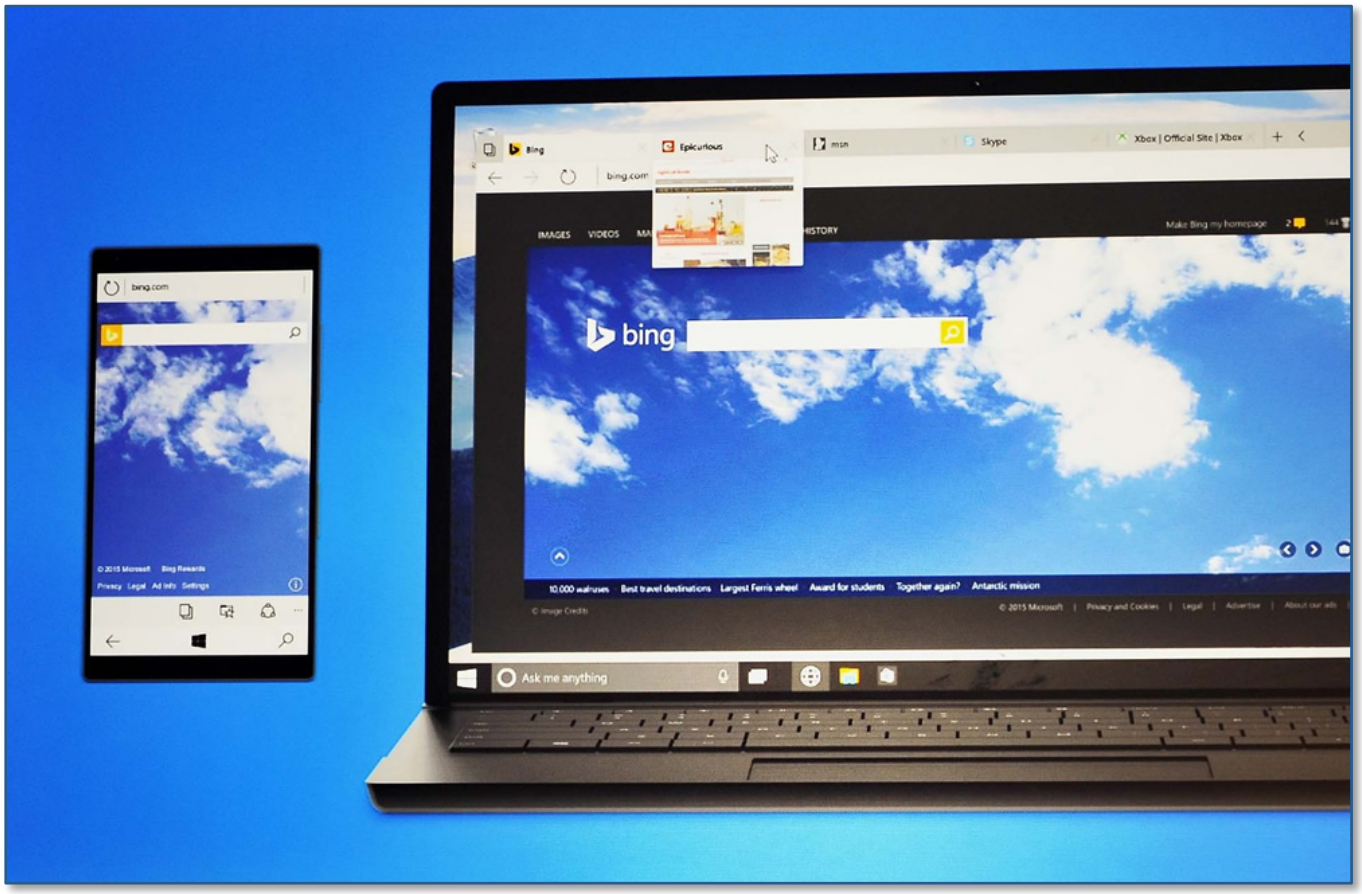
What makes Direct3D 12 better? First and foremost, it provides a lower level of hardware abstraction than ever before, allowing games to significantly improve multithread scaling and CPU utilization.

In addition, games will benefit from reduced GPU overhead via features such as descriptor tables and concise pipeline state objects.

And that's not all – Direct3D 12 also introduces a set of new rendering pipeline features that will dramatically improve the efficiency of algorithms such as order-independent transparency, collision detection, and geometry culling.

Microsoft are claiming that just by using DirectX, you'll see an ***additional 20 percent improvement*** in your graphics frame rate, and a drop in CPU utilization to boot.

Spartan Browser



What is “Project Spartan”?

Today, the most used browser globally is Microsoft’s Internet Explorer.

Internet Explorer is the web browser Microsoft includes in all its Windows operating systems.

Internet Explorer or IE has 55.59% share of the total global market of the web browsers which is much more than its nearest competitor, Google Chrome that has only 11.89% share of the market as of January 2015.

However, Internet Explorer is still regarded as being a little older, less contemporary and in it’s current form losing ground to competitors.

Spartan and Windows 10

Project Spartan is the company’s attempt to start clean and create a lightweight, competitive, fast and flexible browser.

Some of the features of this new browser will be:

- The ability to mark up webpages before sharing them with others.
- The ability to comment on those same pages at the software level.
- Built-in offline reading and PDF support.
- Built-in Cortana support and Integration.

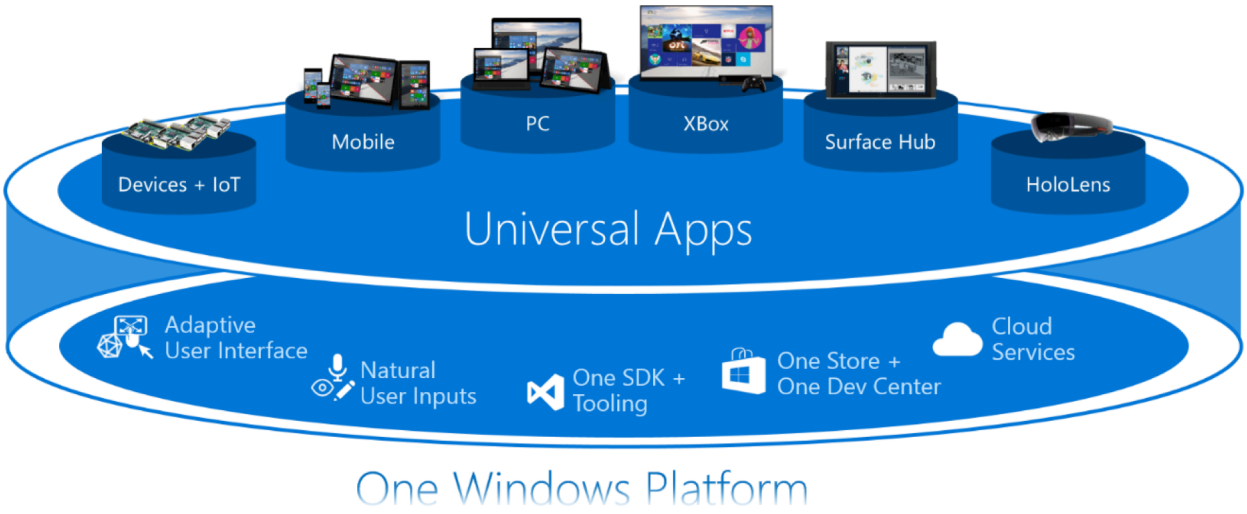
We are learning more about Spartan every day and will update this document as more becomes clear.

Once again, at this point Spartan is not a replacement for Internet Explorer, but rather a second browser.

Microsoft has explained that while Spartan will work with the rest of the web, IE11 will be kept for compatibility with legacy and enterprise websites.

As with everything else, this is subject to change.

Universal Applications



The concept of Universal Applications is something that Microsoft has been working on for a very long time.

Today, you probably have a multitude of devices, each with its own sets of apps.

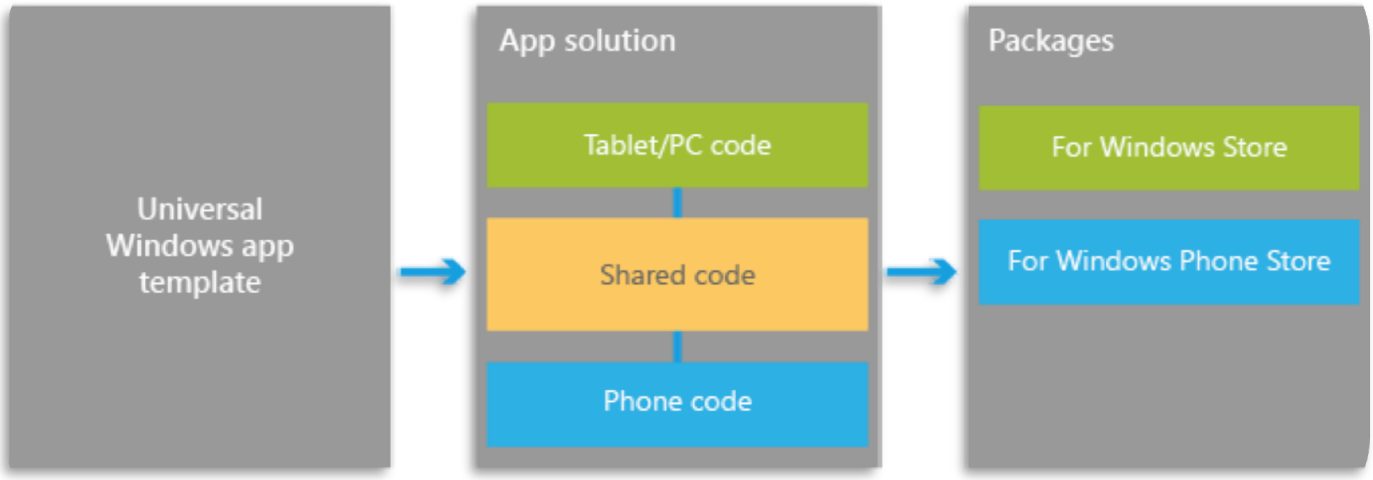
You may have a smartphone, a tablet, a laptop, maybe a powerful desktop PC, and even game console. Each of those devices may have its own app store making it tedious to get a common app on all of them (Netflix for example).

With Windows 10 Universal apps, Microsoft is trying to fix this inefficiency.

Universal apps, first introduced in Windows 8.1, let you acquire an app for your phone, tablet, PC, (and soon even your Xbox), all at once from **one app store**.

Yes, Microsoft is **finally** looking to unify its app store to reflect the presence of Universal applications that work on multiple form factors.

This class of applications makes things easier for both the app developers and their consumers.



Developers will get to use about ***80 percent of the same code*** regardless of the target platform, and users only have to acquire an app once for all their devices.

Of course, a full PC app differs from a phone app, and hence the 20-percent difference in code. But the degree of unification of app development and stores won't just benefit users and developers but also the entire Windows platform.

If a developer can target the entire audience of PC users and Windows Phone users in one fell swoop, there's a good chance that more quality apps will make it to the combined platforms.

Apps like Word, PowerPoint, Excel and Outlook will look and feel nearly identical to their desktop counterparts, but be optimized for touch and screen size and through Microsoft's cloud infrastructure, all of your files will be accessible through those devices regardless of where it was created.

Following the January 21 event, Microsoft went on to confirm that its most important suite of Universal apps, Office 2016, will launch in the second half of 2015. This potentially puts Office 2016 ahead of Windows 10 in terms of release.

On March the 2nd 2015, Kevin Gallo, the Director of Windows Developer Platform for Microsoft spoke at the 2015 Mobile World Congress event in Barcelona.

Here's some of what he had to say:

> Earlier today at Mobile World Congress in Barcelona, I provided developers a first look at the Windows 10 developer platform strategy and universal app platform. I encourage you to tune in to our Build conference in April for the full story.
>
> Windows 10 represents the culmination of our platform convergence journey with Windows now running on a single, unified Windows core.

This convergence enables one app to run on every Windows device – on the phone in your pocket, the tablet or laptop in your bag, the PC on your desk, and the Xbox console in your living room.

And that's not even mentioning all the new devices being added to the Windows family, including the HoloLens, Surface Hub, and IoT devices like the Raspberry Pi 2. All these Windows devices will now access one Store for app acquisition, distribution and update.

For APIs specific to a given device family (e.g. a phone dialer), the universal platform also provides an easy way to light up that functionality within an app without having to resort to using conditional compiler flags.

Today I'll briefly touch on how this new platform delivers on the three platform goals I discussed in January:

- Driving scale through reach across device type
- Delivering unique experiences
- Maximizing developer investments

You can expect us to go into all of the universal platform technical details at Build.

Driving scale through reach across device types with mobile experiences

To understand why we converged Windows into one core and one developer platform, it's worth examining how the customers' relationship with their devices and the experience they expect has changed.

The explosive growth in mobile devices over the last decade has led to the creation of totally new app experiences and has driven an extension of existing web experiences to enable developers to reach customers in innovative and unique ways.

Until now, mobile experiences have largely meant app and web experiences built for mobile devices – most often defined by the phone you carry with you.

But this is increasingly too narrow a definition for a growing number of customers who want their experiences to be mobile across ALL their devices and to use whatever device is most convenient or productive for the task at hand.

We see this preference for mobile experiences manifest itself most profoundly in what customers search for in the Store.

Just a year ago, the experiences customers sought on Windows phones were different from tablet, which were different again from laptops and PCs, and different from the game console. This has changed – rapidly. Today, the top Store searches for each device type overlap significantly, both across and within app categories.

Building a platform that supports this new world of mobile experiences requires not only supporting a number of screen sizes, but also providing flexibility in interaction models, whether it be touch, mouse & keyboard, a game controller or a pen.

As a customer flows across their devices, they will often quickly transition from touch gestures (e.g. selecting a song or playlist, reading a news feed or document or viewing pictures from a trip) to keyboard & mouse for productivity (e.g. managing their playlist, writing a new blog post, or touching up that video or photo for sharing).

To bridge the device gap (how many devices does a customer really want to carry with them?), the industry is seeing the emerging trend of multi-modal devices, like the 2-in-1 Surface Pro 3.

Within app experiences, an increasing number of apps handle this exact scenario – except developers are bridging this gap by building one or more mobile apps, a desktop application, and a website. We believe this can and should be easier.

With Windows 10, we are leading a new path forward for mobile experiences – breaking out of the limited box of just mobile devices and empowering customers take full advantage of all of the screens in their life.

For Windows, our one Windows core and the universal app platform power these mobile experiences.

As we built the universal app platform, we set out to ensure that all Windows developers would equally benefit from this one core.

The platform enables a new class of Windows universal apps – apps that are truly written once, with one set of business logic and one UI.

Apps that are delivered to one Store within one package. Apps that are able to reach every Windows 10 device the developer wants to reach. Apps that feel consistent and familiar to the customer on all devices, while also contextually appropriate to each device's input model and screen size.

The new universal app platform completes our developer platform convergence by providing you with the ability to finally create one app that can run on mobile, desktop, console, holographic, and even IoT devices.

Delivering unique and personal experiences
The universal app platform is designed to help you quickly build these new mobile experiences that are both consistent yet flexible, enabling you to deliver a unique, highly-personalized experience to delight and engage your customers across each device family you target.

We do this by providing a number of platform capabilities that do most of the runtime adaptation work for you, and doing so intelligently, allowing you to focus on delighting the customer:

> **Adaptive UX**: enables your app's user interface to fluidly adapt at runtime based on how the customer is interacting with your app and the available device capabilities – rendering an experience that is contextually appropriate.

Screen layout: In addition to base app model improvements, we have improved the ViewStateManager to make it easier to create more adaptive experiences. This means that your universal app projects no longer require separate project heads or UI definitions for small and large screens, although we will still provide the option of separate UI definitions should you prefer it.

User controls: Windows 10 will determine, at runtime, how the customer is interacting with your app and render the appropriate user experience (e.g. on a laptop with a touch-screen, an app fly-out control will provide larger touch-targets if tapped with touch, as opposed to clicked with a mouse).

Natural user inputs: Windows 10 helps you build an app experience that is more personal and more human, by making it easy to incorporate natural user inputs into your app, such as natural speech, inking, gestures, and user gaze. Because Windows handles all of these inputs, we free you from needing to worry about how to parse the input for meaning – you only need to worry about which inputs are appropriate for your app and we'll determine if they are present and parse the intent for you.

Cloud-based Services: Windows provides a number of services for use in your apps, such as Windows Notification Services (WNS), Windows roaming data and the Windows Credential Locker.

With Windows 10, we are making more Windows services available to developers, including an expanded Cortana AI, OneDrive, and Application Insights.

But we know that your mobile experience doesn't end when the customer closes your app. There are a number of Windows shell advances that are enabled by universal platform advances, making it easier to keep your customers engaged and getting your apps launched more often.

Examples include:

Cortana integration: Apps now appear (and can be launched) directly in Cortana search results, with installed apps given highest priority in the search results.

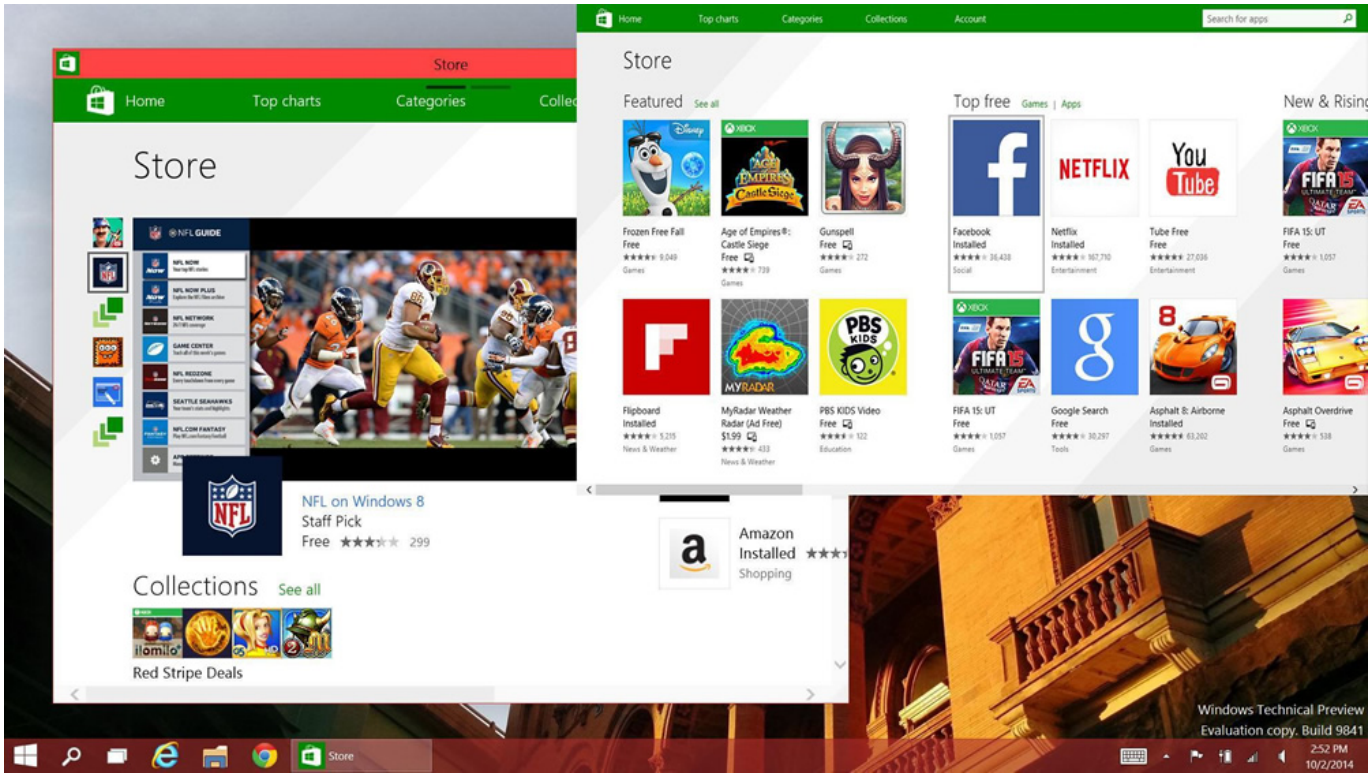
Action Center: Windows 10 brings a more consistent and actionable notification experience to all Windows devices.

Lastly, I'd like to call out that the universal app platform is at the heart of Windows 10 itself with much of the shell running on the platform, in addition to a number of our key Windows experiences (e.g. a number of in-box apps, the Windows Store, and the 'Project Spartan' browser, to name a few).

And the same animations, APIs, and controls used by these app experiences are available to you.

You can feel confident that this platform has been 'battle-tested' and is ready for you to build mobile experiences that delight your customers, just as we are.

The Microsoft One Store



So this is exciting.

Microsoft seems to be making progress in the effort to unify their app stores.

They are creating a central location for all their apps irrespective of device and the plan is to call this the “One Store”.

As of this writing, Microsoft just updated the app store and added a new section called ‘Movies &TV’ but it’s still under construction.

Microsoft have indicated that this new section should be available later this month and you will be able to purchase or rent content directly from this store.

This is a big step as it indicates that the Microsoft One Store will handle ALL types of media, not just software.

If you have a Windows 10 Technical Preview installed, you should be able to see this update by opening the beta app store on your install.

Xbox Integration

At the 2015 Game Developers Conference in San Francisco, Phil Spencer, Head of Xbox at Microsoft, shared the next step in the company's plans for a unified vision for gaming across Windows 10 devices.

Here are some of the details he shared:

As we press forward on the journey toward the launch of Windows 10, we'll continue working hand-in-hand with our developers to ensure that together we bring the best possible gaming experiences to gamers.

> **Xbox Live SDK Available for Windows 10:** In January, we announced our commitment to bringing Xbox Live to Windows and today we announced that the Xbox Live SDK for Windows 10 is currently in the hands of managed partners to create new games.
>
> Soon it will be in the hands of a broader set of developers. This SDK will provide access to the vast majority of Xbox Live services currently available on Xbox One, under a shared set of APIs, integrated with the Windows Store.
>
> We are also committed to making Xbox Live accessible to all game developers, regardless of size, which is why we're introducing a new tier of Xbox Live that is designed to allow any developer to engage with the Xbox Live community.

Windows Universal App Platform: Windows 10 brings together one core operating system, one application platform, one gaming social network, one store, and one ingestion path across all Windows PCs, Tablets, Phones and Xbox One consoles – that's more than 1.5 billion people.

With the Universal App Platform, any developer can create a single project to target multiple devices. It will be easier than it has ever been to bring content to PCs, tablets, phones, Xbox consoles, and future Windows 10 devices like Microsoft HoloLens.

Developers will be able to do this and more when Windows 10 is available this year.

Windows Store: With the Windows Store, Microsoft is committed to delivering best-in-class scenarios for gamers and game developers.

For developers, the promise of one store across devices means they will now have the ability and flexibility to deliver content across PCs, console, tablets, and phones, easily and quickly. Similarly, by enabling new experiences such as cross-buy, developers now have more flexibility on the features they deliver to gamers across Windows devices.

Universal Development Center: The Universal Development Center is the developer portal to building and delivering games to the Windows Store.

It provides fast, lightweight game submission and update capabilities within the developer's direct control, as well as access to key metrics to understand their game's performance.

Improvements in platform, tools, and Xbox Live services, while reducing overhead of publishing, will foster more compelling game content and a richer, more engaged gaming community.

DirectX 12: DirectX 12 enables PC developers to have a new level of power and control and is a single API developers can access across Windows devices.

As shown with Fable Legends running on Unreal Engine 4, there has been a 20% improvement in performance. And as announced today, Epic is creating Unreal Tournament using Unreal Engine 4 running on DirectX 12, which sets a new bar for visual fidelity in PC gaming.

Accessories: All wireless Xbox gaming accessories will be designed for and supported on both Xbox One consoles and Windows 10 PCs moving forward. Later this year, we'll be delivering a Wireless Adapter that will let you use current Xbox controllers and future devices wirelessly on your PCs.

ID@Xbox Program Comes to Windows 10: It's been an amazing year since we showed off the first ID@Xbox pre-release games last year at GDC. Many ID@Xbox games have shipped; hundreds of games are in development, and more than 1,000 independent studios have Xbox One development kits in hand.

Today, we revealed that ID@Xbox will be expanding to help developers succeed by reaching gamers on Xbox One and Windows 10.

Xbox app on Windows 10: The app collects all games played on any Xbox or Windows 10 device, a universal friends list and an activity feed. Every Windows 10 device will have the Xbox app pre-loaded.

Users will be able to record game sessions through the Game DVR tool and share them across the Xbox network. Essentially, Windows 10 will bring the automated recording featured in Xbox One to games played on Windows 10 – even those launched through other apps, like Steam.

There will also be the ability to stream any Xbox One game to any Windows 10 device from within the home over Wi-Fi.

Basically, The Xbox will join the Windows 10 family and will fit smoothly into the Windows 10 ecosystem that Microsoft is creating.

The plan is to be able to move data and information seamlessly between Microsoft devices and the Xbox (as you can see) will be part of that ecosystem.

Windows 10 Server

While there has been a lot of attention paid to Windows 10 for devices and the desktop, there is also a much more powerful OS being built that will power the enterprise and beyond called Windows Server 10.

There hasn't been too much shared about Windows Server so we will continue to look for updates as they come.

There is one notable exception.

So we have been getting tons of leaks and news about Windows 10 but not too much news about Windows Server 10.

A few days ago, a set of slides leaked that showed a lot of thought being given to the server side Operating System.

Apparently, Microsoft is creating a new deployment option for Windows Server called 'Nano Server.'

The slides indicate that Nano Server will be the heart of their next generation cloud infrastructure.

Nano Server will be designed to have a zero footprint model with roles and optional features living outside of the platform.

It will support Hyper-V, Clustering, Core CLR, ASP.Net vNext, PaaSv2 and much more.

The goal for Nano Server is to eliminate the need to ever sit in front of a server with access to remote management/automation via Core PowerShell and WMI.

Powershell Web Access is available for running cmdlets on the end-node from anywhere in the world.

Microsoft says that TAP customers will get access to the feature in 2015 but it will not be part of the next Windows Server release.

However, it will be part of the release following the next release, so you should be able to get your hands on Nano Server in the next several months.

The Microsoft Surface Hub

Microsoft unveiled a whole new category of device designed to showcase Windows 10. They called it the Surface Hub.

The Surface Hub features a 55-inch or 84-inch 4K display with support for multi-touch and pen input.

The massive screen also includes dual cameras, microphones, and a wide array of "advanced sensors," Microsoft says, though it's not yet sharing full details on all that's inside Surface Hub.

The cost is not clear either.

Microsoft customized the Windows interface for such a large display, offering quick access to Skype video calls, a OneNote whiteboard for drawing and annotation, and a shortcut for connecting to another nearby Windows 10 device.

Signature Windows features like Snap remain, however. And you can use just about any app on the big screen.

Some of their documentation states:

> *The Surface Hub features state-of-the-art digital white boarding; instant remote conferencing; the ability for multiple people to share and edit content on the screen from a laptop, tablet or phone; and a trusted platform for large-screen apps. Available in two sizes — 55-inch and 84-inch — the Surface Hub removes the current limitations of traditional conference room scenarios to empower teams to create their best work together.*

You can also hold video conferences while scribbling on the whiteboard because of all the real estate 84 inches gives you.

Microsoft is clearly targeting Surface Hub at businesses and conference rooms.

"It will make your meetings productive and engaging," the company says.

Windows Holographic

So Microsoft literally woke up and decided to create a new category of computing. They introduced us to the new platform - **Windows Holographic**.

During its January 21 event, Microsoft revealed Windows Holographic and Microsoft HoloLens, a brand new headset and hologram system designed to blow the concept of augmented reality wide open.

The dark visor up front contains a see-through display, there's spatial sound so you can "hear" holograms behind you, and HoloLens also integrates a set of sensors.

Windows Holographic is Microsoft holographic computing platform, while HoloLens is the proof-of-concept for the firm's holographic computing initiative.

The company built a brand new holographic processing unit (HPU) to process terabytes of data from every sensor packed into the HoloLens.

Through the HPU, HoloLens can run completely independent of any other device.

Holograms will be considered as Windows Universal Apps and each Windows 10 device (big or small) will have Holographic API's built in.

Alex Kipman, the man in charge for this project at Microsoft, says Windows Holographic is not so much about "putting you into virtual worlds," which may not be for everyone, but to move beyond them, offering deeper experiences and, well, holograms!

In one of Microsoft's Windows 10 unveil events, they showed this all off with a live demo of an app they call HoloStudio.

A Microsoft employee built a quadrocopter onstage by pointing her finger and issuing voice commands like "mirror" and "copy." It all seemed truly natural indeed.

Kipman likened it to "print preview for 3D printing" and then pulled a 3D-printed version of the UFO-like quadrocopter seemingly out of his back pocket to show that it really worked.

There was no word on when HoloLens will launch and how much it will cost, but Microsoft is promising that it will be ready for the public launch of Windows 10.

Windows 10 and Office 2016

Microsoft has released the universal versions of its flagship Office apps Word, Excel, and PowerPoint for the Windows 10 Technical Preview, according to its Office Blog.

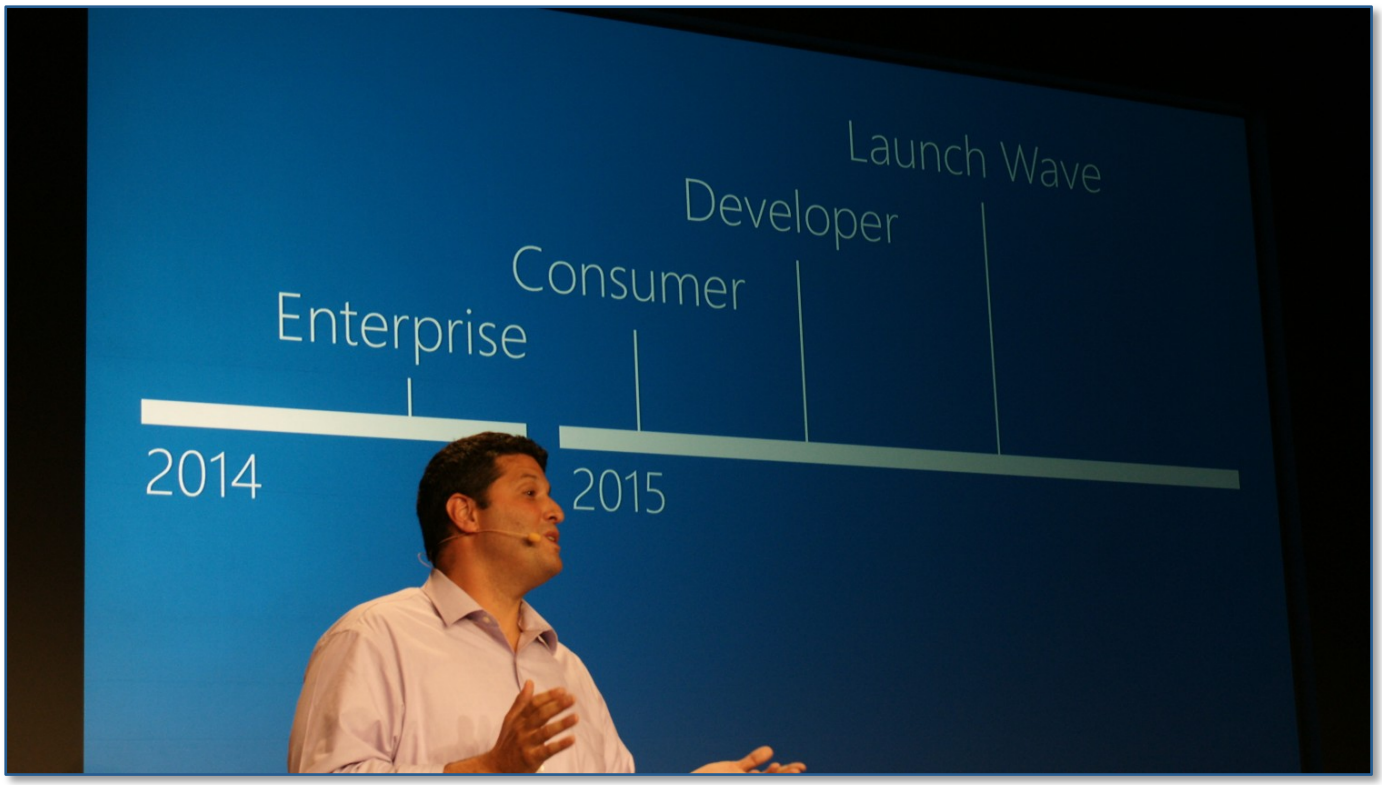
The universal apps are designed to work on every device running Windows 10, from a Windows Phone all the way up to the 84-inch Surface Hub.

The mobile version of the apps aren't currently available, but Microsoft says it will open up the preview to smartphones and tablets running Windows 10 "in the coming weeks," according to Julia White, general manager of the Office product management team.

OneNote is already available on Windows 10, and Outlook and Calendar are expected to be available sooner than later.

You can download Word, Excel, and PowerPoint — if you're running Windows 10 Technical Preview — from the Windows Store Beta today.

Windows 10 for the Enterprise



As usual, Microsoft is also focusing on versions of Windows 10 for large organizations or Windows 10 Enterprise.

Enterprise clients easily account for the largest profits for Microsoft so it's important for Redmond to keep these customers happy.

Enterprises usually have special needs in terms of customizations, licensing and support.

Here are some of the requirements that Microsoft will have to satisfy for large businesses:

- Enterprise security
- Portability
- BYOD policies
- Granularity with provisioning
- Easy to manage
- Easy to provision
- Easy to deploy
- Easy migration plan
- Easy to train users on
- Multi-device integration

- Secure enterprise apps
- Flexible licensing

And on and on it goes.

Microsoft will need to work closely to provide each organization with exactly whatever they need in their Microsoft products.

According to Microsoft's Jim Alkove, who leads the Windows enterprise program management team:

> *"We're planning for the new, unified app store to allow for volume app purchases based on existing organizational identity, flexible distribution, and the ability for organizations to reclaim or reuse licenses. Organizations will also be able to create a customized store, curating store experiences that can include their choice of [Windows] Store apps alongside company-owned apps into a separate employee store experience."*

With Windows 10, Microsoft will be providing the enterprise with more flexible ways to deply and manage Windows across an organization.

Windows 10 will allow system admins to separate and secure corporate and personal data across all the devices, protecting the corporate data wherever it goes.

This will be critically important whether it is on a Bring Your Own Device (BYOD) device or on a managed device within the enterprise.

From a security perspective, Windows 10 will enable admins to selectively remotely wipe devices so that enterprises can remotely wipe out sensitive corporate data from employees devices and PCs without affecting their personal family photos, videos and files.

Updates to the OS will be handled differently for the enterprise.

Each company will be able to choose how and when to update their devices, PCs and systems generally.

Unlike consumer updates, once Microsoft releases updates for Windows 10, such updates are not necessarily installed on enterprise systems unless those companies have tested those updates and feel comfortable rolling them out.

If you’re a company with 20,000 users, you probably should be on a different, slower and more patient Windows Update cycle.

Enterprise Pricing for Windows 10
Windows 7 Enterprise and Windows 8/8.1 Enterprise will not be getting Windows for free.

As we said before, Enterprise customers will have a thoroughly tested version of Windows 10 because compatibility with existing hardware and older software is a critical requirement of businesses.

Microsoft will now maintain two branches for such customers:

- The Long Term Servicing Branch
- The Current Branch for Business

The Long Term Servicing Branch

The Long Term Servicing branch will continue to get latest and greatest security updates and enterprise grade support, but the feature updates that will be pushed to normal customers will not be provided during the support lifecycle of the OS.

This branch is aimed at businesses that cannot compromise on stability and can do without the cutting edge features.

On Long Term Servicing branches, customers will have the flexibility to deliver security updates and fixes via **Windows Server Update Services (WSUS)** which allows full control over the internal distribution of updates using existing management solutions such as System Center Configuration Manager or to receive these updates automatically via Windows Update.

The Current Branch for Business.

Businesses opting for the Current Branch on the other hand will be able to get the feature updates from the consumer versions but at a later date, once the features have been tested by Windows Insiders and guaranteed to not break compatibility.

By the time Current branch for Business machines are updated, the changes will have been validated by millions of Insiders, consumers and customers' internal test processes for several months, allowing updates to be deployed with this increased assurance of validation.

System administrators will be have the flexibility to choose the updates that they would like to deploy in their operating environments, giving further control over the overall stability and compatibility of the Windows 10 installations.

This is great news as it reflects the fact that Microsoft is giving a lot of thought to Windows 10 as a Service and Windows 10 business Requirements. Stay tuned for more…

Windows 10 Release Date

As of Sunday, March 1 2015, the best we know about the Windows 10 release date is the Microsoft promise that it will be available later this year, i.e. 2015.

There are rumors that Windows 10 will be RTM'ed (Released to Manufacturing) in June of 2015.

Those rumors remain uncorroborated at this point and as soon as we know more we will update this book.

Summary

Windows 10 is easily the most ambitious undertaking that Microsoft has ever embarked on. As a result, the scale and breadth of the effort is mind blowing.

Much more than an Operating System, Windows 10 is the company's attempt to not only make up for some of the previous missteps like Windows 8, but to dominate the very future of computing.

Now, very few companies have the resources to take on a task this size but as we have seen over the past few months, Microsoft is willing and able to try.

While we aren't quite at the end of the story yet, everyone should pay attention to this Operating System.

If Microsoft can accomplish even half of what they are shooting for, once again they will have changed the face of computing forever.

Addendum

This section of the book is reserved for monthly updates.

We will append new developments in the world of Windows 10 to this section of the book.

If you have purchased this book, you will be able to register to receive updates until Windows 10 is in stores.