WINDOWS 8 VISION

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Note to the reader: We are delighted to share with you the Windows 8 vision, our inspiration and framework for the next great release of the Windows Client operating system. This vision document represents our very best efforts at inclusive planning—bottom-up, top-down, and middle-out. It describes our release goals, the spirit of our product, and our feature-specific priorities. It also represents the performance review expectations for the organization as a whole and cements our commitment to Microsoft to deliver the next release on time and at the highest quality. As a team, we feel confident that this vision provides a roadmap to success and we're looking forward to focusing all our creative energies on making this the technically outstanding and customer satisfying release we know it can be. Delivering on this vision requires the contribution of many divisions at the company. While we can't list all the partnerships implied by this plan, we are confident that our partners across the company will share in the excitement and sense of purpose, and we appreciate their commitment and accountability to this shared vision. In particular, Windows Live continues to be an important showcase developer for our Windows platform and will continue to integrate software and services through public interfaces in accordance with our [Windows Principles](); we expect this work to be described in detail as part of Windows Live Wave 5 planning.

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INTRODUCTION

Windows software brings tremendous satisfaction to about a billion people every day. Through observation, telemetry, and our collective experience we can say these billion people are using it as an essential part of their lives, in at least a billion different ways. Our goal is to continue to extend the breadth of PC usage and deliver Windows 8 as a significant and celebrated continuation in the Windows mission of *making the Windows experience a vital and loved part of people's lives*.

With Windows 7, we were, by many accounts, successful in building what we set out to do and in keeping true to the spirit of our vision. It was an incredible accomplishment for us and across our entire ecosystem of partners. This focus on delivering on the vision and thinking through the implications throughout the industry has gone a long way toward earning the trust of our partners and customers. Because of our work, expectations are even higher with Windows 8.

As we look forward, it's clear that we're in the midst of a new wave of Internet innovation. As the use of the Internet deepens into more aspects of our lives and broadens to include more citizens of the world, the scenarios and technologies are going to change. Throughout planning, we've observed the continued evolution of the computing landscape. Customers are spending more time consuming content on the Internet, and less time creating new content; the role of the PC is changing to be more of a true consumer device. Customers have greater expectations of connectivity, performance, stability, ease-of-use, integration and overall capability and satisfaction.

These changes and expectations are a clear call to action for our team, and we need to take advantage of these emerging trends and lead with new innovations. Through our planning, we've stepped back to assess our customers, competitors and position in the market, as well as explore the deep questions we asked ourselves of our product line. We believe that our central mission and core goals remain the same, yet we also believe we need to extend the number of scenarios Windows supports seamlessly and flawlessly. We need to be even more focused as a team on the core value we provide to customers.

In creating Windows 8, we've considered big innovations that will help us to redefine the computing experience on Windows, and we'll build software and services that bring innovation to the desktop. We'll make it easier for customers to consume their favorite web applications and for developers to build web applications that take advantage of the Windows platform and ecosystem. We believe this focus will redefine how customers perceive the PC and will expand their connection to the Internet and to devices that they use every day. Working together with Internet Explorer, Windows Live and Windows Server, we'll provide richer, connected experiences that increase the customer value of third-party applications and services running on Windows—at home, on the go, or in the enterprise.

We remain committed to delivering complete experiences, with attention to critical detail, that result in the greatest customer satisfaction and connect to the most significant Windows business drivers. The fundamentals and core of our system will continue to improve and meet the expectations of quality we define. We'll make certain the features we ship are complete, earn customer satisfaction, and build loyalty; this will no doubt involve hard choices regarding features we choose not to develop in order to stay true to this principle. To achieve these ambitious goals, we'll acknowledge in our daily work that the experience extends beyond the quality of the technology itself and encompasses a customer's ability to access or discover it and use it for *their* intended purpose. We'll create both platform technologies for the application community and complete experiences for the customer. We'll pay unprecedented attention to detail while ensuring we deliver innovation in key areas.

We are uniquely capable of achieving this balance; our legacy, ecosystem and worldwide customer base, developer opportunity, consumer and enterprise scale, and engineering creativity and talent combine to set up this opportunity. These are our assets and represent challenges we fully embrace. We begin by internalizing the Windows 8 vision and ensuring customer focus in everything we ship—simplifying one more experience, refining one more piece of UI, developing one more specific error handler, or improving the responsiveness where it matters most. From this, we can deliver a seamless installation and showcase all of Windows capabilities. We'll carry this mindset forward from the designs, to the code, to the tests, to our marketing and sales efforts.

While we emphasize customer satisfaction in the Windows 8 release, we'll also emphasize the satisfaction in doing a job right, at the caliber we expect of ourselves as the world's most successful software company working on the world's most important software. When a team works well, focusing on the right end-to-end scenarios, making smart engineering decisions, creating a solid plan and sticking with partner teams, the work is incredibly satisfying.

We've focused our investments on scenarios that map to the pillars and customer promise for the release. We believe that these scenarios, collectively, will ignite customer enthusiasm for our product and define Windows 8, along with the applications and services designed for the platform, as the most compelling reason to upgrade and reason to purchase a new PC. The pages that follow map out our business objectives, technical imperatives and, most importantly, the end-to-end customer scenarios we will deliver and business opportunities we will realize. The document marks our promise to our customers, to our partners, to Microsoft, and to each other. We now move from promise to execution, from planning the work to working the plan. This vision establishes necessary boundaries. Now is the time for creativity in engineering, in solving problems with constraints, aligned with business and customer objectives. Success for Windows 8 means building these scenarios with the level of detail that drives customer satisfaction to new highs and ensuring all of our work aligns with the constraints and spirit of this vision.

BUSINESS FOUNDATION

Windows is among the most recognizable and successful brands in history, with more than a billion Windows PCs running globally, powering customers and partners. In simple terms, our continued success depends on PC shipments, the share of those PCs that are capable of running Windows, how many of those include a Genuine copy of Windows, how much we charge for each license, and finally how much additional revenue we can generate over the lifetime of those PCs. Our success in the above areas depends in large part on a robust ecosystem of hardware, applications and services that provides unparalleled choice for every customer segment and every budget.

From a customer segmentation perspective, the Windows PC run-rate is higher in the consumer market than in the business market, while the business segment generates approximately half of total Windows revenue. Windows business revenue comes from pre-install of Windows Professional and post-PC purchase Volume Licensing and Enterprise Agreements.

From a geographic perspective, more than 70% of the Windows revenue comes from outside the United States, and that share is expected to grow as the percent of total PC shipments from Emerging Markets is expected to dramatically increase in the coming years. China, where piracy remains a huge challenge, will surpass the United States as the top PC market in terms of annual shipments, leading to billions of dollars of unrealized revenue.

As we established this product vision, we considered several fundamental business drivers that impact our growth in the Windows 8 timeframe.

Windows Genuine Attach. Windows is used on almost all PCs in China, however only a fraction of them run Genuine Windows. Globally we expect more than 70 million PCs to ship with or quickly convert to a pirated version of Windows in 2010. There is a significant opportunity to improve our Genuine attach rate in all markets, but the largest single opportunity is in China. Windows 8 must provide a clear, simple, and consistent value proposition for Genuine Windows, supporting a notion that Genuine is safer, more reliable, and delivers the latest and best of Windows. Consumers must find it easy and convenient to upgrade their product to Genuine.

Revenue per License (RPL). Revenue per license represents the average dollar amount Microsoft realizes for each license of Windows sold, as a function of the Windows SKU selected and the price paid for that SKU. In the consumer segment, low-cost PCs continue to be a key focus area. While we've earned substantial market share on these devices, this growth has come at the expense of revenue as our OEM partners chose to pre-install Windows Starter on these PCs. In the small business segment, we're seeing an increasing number of PCs sold with our consumer offerings rather than the commercial offerings, as these small businesses are being very diligent in questioning the incremental value they receive from the Professional edition, particularly if they don't run a server. Finally, in emerging markets we've lowered prices to ensure Windows is available to the broadest set of customers. As PC unit growth in emerging markets outpaces developed markets, our aggregate RPL across the business comes under pressure. Windows 8 must drive increased RPL by delivering differentiated value for premium SKUs as well as increasing value in emerging markets through clear Genuine differentiation.

Revenue over Time. By delivering specific business-oriented features, Windows generates significant revenue over time in the business segment through Volume Licensing (VL) and Enterprise Agreements (EA), which are contractual relationships that give businesses the rights to the next release and access to

the Enterprise SKU. In the consumer segment, revenue over time through Full-Packaged Product (FPP) and Windows Anytime Upgrade (WAU) is modest, yet upgrades can generate 2-3 times more revenue per license than a typical OEM sale. Windows 8 needs to enable growth of our upgrade business, both through incremental value versus Windows 7 and by substantially lowering the friction of upgrading through investments in areas such as Electronic Software Delivery (ESD). Similarly, Windows Anytime Upgrade (WAU) can help our customers move up to premium versions of Windows 8 with a clear value story to excite customers about our higher-end offerings. In addition to upgrades, Windows 8 and Windows Live must reach consumers and create new monetization opportunities for Microsoft and its partners over the PC lifecycle, even if they are "break-even" for Microsoft.

Software Ecosystem Health. Windows is only as valuable as the unique applications it runs and the unique devices it complements. Over the last decade, fewer and fewer applications have taken advantage of the unique power of the Windows platform. During this period, developers adopted web technologies and found easier ways to develop, distribute and monetize "good enough" application experiences that don't take advantage of the richness of Windows. More recently, mobile platforms have opened up yet another frontier for developers looking to increase their reach. Competitors such as Google (web) and Apple (mobile) have made it easier for those developers to monetize their applications. Today's developers, both professionals and non-professionals, target the web and mobile phones and perceive Windows as a platform that's difficult to access and monetize. Windows 8 must offer developers compelling reasons to write applications that take advantage of the unique Windows platform. The value proposition gets realized by solving easy-to-identify consumer problems with easy-to-use developer technologies.

Hardware Ecosystem Health. Windows has enabled a vibrant and innovative hardware ecosystem that uniquely provides a diverse choice of products to consumers. PC growth is starting to recover from two years of macro-economic induced decline, but the shape of competition within the ecosystem has changed. Despite significant differences in quality and industrial design, consumers have gravitated toward price as a primary driver for PC purchase decisions. The number of premium laptop PCs sold costing more than $1,000 has shrunk and is now led by Apple. The retail channel has consolidated and the larger retailers have greater control over what PCs get on the shelves and at what prices. A new Telco and service provider channel is emerging, with subsidized PC offerings. In such a competitive environment, the System Builder channel shrunk and the OEM channel has consolidated, with the top three OEMs accounting for more than half of all PC shipments in FY09. In order to cut costs and gain scale, OEMs have relied more and more on Original Device Manufacturers (ODMs) for design and manufacturing while focusing on software and services. Windows 8 must provide greater opportunity for new channels, increased demand, form-factor innovation, premium hardware, support for new hardware innovations and differentiation opportunities for all ecosystem partners—from manufacturing to distribution, sales, and service providers.

COMPETITION

While Windows 7 is receiving positive reviews, consumer sales are above market expectations, and deployment momentum within businesses is accelerating, the business foundation articulates a number of challenges that motivate our ongoing commitment to innovation. Our industry is more complex and competitive than ever and the market in several years is likely to look very different than it does today.

We expect that a business of such magnitude and success will always have strong competition. Apple, Linux and most recently Google offer alternative operating systems for PC devices. Processor evolution on Systems on a Chip (SoC) platforms introduce new device categories that, today, are not compatible with Windows, yet can be powered by competing operating systems. Browsers in both PCs and phones have become popular developer platforms. Emerging non-PC devices built around connected Internet services and media consumption challenge our relevance in important consumer scenarios. But every one of these competitive challenges also brings an opportunity to advance Windows to deliver experiences across the broadest range of devices and form factors.

With a platform and ecosystem that supports such a range of scenarios, the competitive landscape is seemingly limitless. We focus on several competitors that could have the greatest impact.

Google. Google's growing number of offerings extends the ways in which they compete directly with the full Windows experience. Both Android and Chrome OS compete with Windows, while the Chrome browser competes with Internet Explorer, and Gmail and other Google services compete with Windows Live. Google's major asset is their search business, which allows them to monetize customers over the lifecycle of the PC. This creates revenue-share opportunities that facilitate OEM distribution of their software. Google's engineering investments plus marketing and brand recognition help build an ecosystem for Chrome OS, potentially increasing its consumer appeal. Google is incented to connect their operating system to Google's services and to push a developer platform that is based on unique benefits of the Chrome browser on top of de-facto standards they drive. The more time customers spend in Google's products, the more Google collects information about customers and can monetize that data through advertising, which helps their distribution partners. By making this information available to developers through Google analytics, Google creates an advantage for developers to target its services stack. But Google's business and privacy practices have generated concerns among customers, influentials and authorities.

Apple. Windows 7 and its broad marketing campaign have slowed some of Apple's share growth. However, Apple continues to compete well among $1000+ PCs and maintains a strong focus on delivering high-quality experiences. iLife brings together a compelling set of services similar to Windows Live. iPhone continues to enjoy extremely strong sales volume worldwide and has captured significant developer mindshare over the last few years. Their highly integrated and connected app and content stores, with direct billing relationships, continue to create compelling long-term revenue opportunities for Apple and their partners. Most recently, the much-anticipated iPad demonstrated how much excitement Apple can generate with new product launches. Despite underperforming relative to enthusiast and press expectations, Apple's venture in lower hardware price points has caused our OEM partners some angst and new interest in the slate form factor. With the introduction of the iPad, Apple appears to be at a crossroads between their newer iPhone operating system and their legacy Mac operating system (OSX). It remains to be seen how Apple's developer story will evolve and whether both operating systems will get equal billing in the future.

Browsers. Customers spend a significant percentage of time in the browser, yet Internet Explorer's usage share on Windows is declining. IE 8 is of course making progress and IE 9 looks to be very exciting, yet the percentage of website visits initiated from non-Windows devices is rising, mostly driven by mobile use. As a result, developers who once wrote native Windows applications are now writing web apps that run well enough on any browser on any platform. And new or hobbyist developers are heading straight to web apps. We expect this trend to continue until we enable developers to build applications that light up in exciting ways when they run on IE and Windows, delivering better experiences on Windows than other platforms.

Windows Installed Base. Windows 7 has set a high bar for both consumers and business customers. In order to be successful, Windows 8 will need to be perceived as a worthy successor, not just for Windows 7 and Vista systems, but also for XP, to satisfy the enthusiast customer who feels recent versions are missing some of their favorite things. It also needs to compel consumers to buy new PCs—either as replacement for older XP systems or as additional PCs.

Linux. Linux continues to offer an alternative to Windows, especially for OEMs looking for a low-cost, highly flexible OS and on lower power hardware. Linux has been a recurring choice for hardware innovation, such as enabling OEMs to bring netbooks to market with surprising speed and to develop a new brand in addition to Windows. However, Linux-based PCs continue to lack an ecosystem that would make them more attractive to consumers.

Connected Devices. In the early days, devices needed to connect to a PC periodically to deliver compelling scenarios. Today, many devices never need to connect directly to a PC, or even communicate with a PC, to accomplish the same scenarios. Mobile phones can publish photos directly to websites. Inexpensive network attached storage (NAS) devices have built-in (Linux-based) web servers that enable customers to access data in their home network from anywhere in the world. Soon, customers will be able to use printers in their homes that have never been installed on any Windows PC. In some scenarios, Windows has moved to be a node in a network of devices.

INDUSTRY TRENDS

As we learned with Windows 7, a lot can change over the course of a product cycle. We were able to anticipate and plan for some of the changes over the last three years, while others were unexpected. While there are a number of trends we'll identify and consider below, we must also be comfortable with the eventuality of some unknown developments coming to fruition.

System-On-Chip (SoC) Designs. The integration of discrete PC components onto a single IC is enabling novel hardware scenarios that can reduce power consumption, physical size and optimize for specific user experiences such as media decoding. Common SoCs combine the CPU, graphics processor, memory, and most other components traditionally found on the main board for a computer into a single integrated package. With their lower power consumption, these SoCs are making the jump from specialized devices, such as set-top boxes and smartphones, to more familiar forms such as laptops. SoC designs can also enable some of the always-on and always-connected expectations of consumers. Yet the great standardizations that have enabled the PC industry to succeed are lacking for SoC designs. Windows, as a market leader, has the opportunity to drive the same standardization into the ever-evolving SoC space.

Virtualization. In the enterprise, the virtualization trend will continue, and Windows will be hosted in a software environment instead of on the hardware itself. This will enable continual deployment of the virtual desktop environment while realizing management and deployment savings. The same trend will also continue for server environments, where organizations continue to optimize their hardware capacity usage through allocating dedicated virtual servers. Creating a hypervisor for server environments was a first step in enabling a full Windows solution, and in the future, client virtualization and infrastructure virtualization will enable the future evolution of IT management.

Graphics, Displays and Interfaces. Advances in both displays and interfaces will continue with new developments in 3D technologies and in the interaction model. While 3D technology still has many

limitations today, Windows as a platform can prepare the ecosystem for this evolution. New interaction models such as touch-less gestures—Natal—will enable new and unique applications and entertainment on the Windows client.

Form Factors. With the continual decrease in PC and device component costs, we expect growth in computing power and the diversity of form factors to continue. Both slates and large displays will drive the edges of the PC market, delivering rich computing experiences focused on consumption activities. PC-like experiences will scale from small 5-7" displays to large 60" TV displays. Slates are still an emerging class of device that need more focused experiences, while traditional TVs are evolving to include processing power normally associated with the PC. These developments are creating an environment where Windows can deliver best-in-class experiences on a new set of affordable offerings that were previously out of reach.

Always on and Always Connected. The phone and many other consumer devices have created a customer expectation of an "instant on" technology experience, and many OEMs find themselves investing heavily in trying to enable such an experience on the PC. Along with this is the expectation that connected devices and experiences are *always* connected. PC connectivity will be extended and available through 4G connectivity, with standards such as Long-Term-Evolution (LTE), which will have the ability to deliver low-latency tailored experiences.

Content and the Internet. Online services are providing high-quality and high-fidelity media on demand, and these services have created an environment where the suppliers can economically provide content. Content that used to be exclusively in printed form, such as books and magazines, is now widely available in digital format, and consumer demand for this online content continues to grow. We can see a true shift in the way that we, as consumers, read. In Windows 8, delivering core experiences in media and content consumption are necessary to facilitate this customer desire and realize this business opportunity.

Tailored Experiences. Along with the proliferation of computing power, form factors and rich content choices, we see a trend of customized experiences beyond the web page. This runs somewhat counter to the past trend of experiences solely migrating to the web. Developers still struggle to target specific experiences that align with specific hardware and form factor choice while maintaining the benefits of the web. We've seen the beginning of this tailoring of the web with phones, but there is a strong desire to bring these rich, focused experiences across to the PC as well. As a center of the modern computing platform, Windows 8 has the opportunity to lead the connected world toward the next generation of tailored experiences.

Consumerization. Over the last decade we've observed that consumers play an increasingly important role in the technology adoption patterns of the enterprise. Whereas in the past many consumer technologies used to come from work to home, today we observe how workers provision many of their own devices, apps, tools, information and social networks and bring them to their work environment. Similar trends can be observed among professional developers, in that many develop on their own time outside of work, and while doing so choose different platforms and technologies from those they typically use at work. As a result, these developers are subsequently influencing corporate development choices. It will be important for Windows 8 to capture the hearts of consumers, developers and students as they will continue to shape the technology choices made by IT departments.

VISION AREA INTRODUCTION

Windows 8 has six vision areas from which we will build modern, end-to-end experiences and develop our customer-specific marketing messages for the release.

As we begin feature selection, design and engineering and then move to delivery, each of us must maintain the spirit of this vision. The decisions, tradeoffs, and choices we make in building Windows 8 should relate to the principles outlined below. The dynamic nature of our industry guarantees situations and circumstances this vision will not foresee, but this vision serves as a guide for what is most important and should help each of us make the best decisions for our customers and partners, the team and the company. We realize Windows 8 through this vision and the skills, creativity, and foresight of everyone in the Windows team.

Vision Pillars

- Designed for a Tailored Web Experience
- Engineered for Tailored Web Development
- Connected and Ready to Use
- Enhanced with Services
- Approaching Consumer Electronics Quality
- Future-proofing the OS

DESIGNED FOR A TAILORED WEB EXPERIENCE

The traditional strength of the Windows-based PC has always been productivity. The familiar Windows user experience, introduced in Windows 95, was designed with the needs of office workers in mind—to make people more efficient, productive, and to help them create the best looking and most powerful work products possible.

But the world has changed immensely since 1995. The web—initially as a research tool, but soon after as a place to read, shop, be entertained, and connect with others—has had a profound impact on the world. Today, people spend more than half their time on the PC using the web browser. In a very real sense, people feel like they boot up the computer twice today—once to the Desktop, and then a second time into their web browser, where the things they really care about live.

In the time they're not on the computer, people are computing on their phones: consuming the web increasingly not as raw sites crammed into a web browser, but as apps that tailor their content to the form factor and user scenarios of the phone. Customers of the iPhone, Droid, or Palm Prē view the web through the lens of focused, discrete apps that have a clear point-of-view. They expect these apps to take advantage of the capabilities of the hardware (camera, GPS, compass, accelerometer) to provide connected experiences that far surpass the lowest-common-denominator raw web. They also expect their devices to be personal and connected to the services they use every day.

What has changed most fundamentally since Windows 95 is that people are increasingly using computing devices not just to be productive, but to consume what matters to them—to enjoy themselves and to connect with the things in their life that they love doing: watching TV online, listening

to music, reading, playing games, communicating with friends. A wide range of PC form factors have evolved to provide experiences more easily integrated into real life, from lightweight slates, to all-in-one countertop PCs, to low-cost netbooks.

In Windows 8, we will create an experience optimized for consumption scenarios, and the form factors and input methods that enable them. We will design a modern user experience that re-imagines the spirit and benefits of the web—connected experiences, informing in real-time, built on open platforms—but evolved for modern PC form factors. We will cultivate a new ecosystem of applications, optimized around multi-touch, sharing, people, and connection to devices, which together will create a web experience tailored to Windows. We recognize that customers store information about their identity, people, and the services they use in the cloud, and we'll rely on Windows Live or other compatible services to complete our tailored experience. We will measure this experience not by how productive it makes people, but by how much they love using it.

<div align="center">IMMERSIVE EXPERIENCE FOR CONSUMING THE WEB</div>

Dedicated Mode for Tailored Web. Windows 8 features an immersive experience showcasing a new class of apps designed for consuming the tailored web. This new mode is easily discovered and intuitive to use, easily reachable from the traditional desktop experience. It's designed to provide a high-quality experience across a range of device capabilities. This mode is optimized for specific classes of apps: TV, video, music, reading, social, games, communications, shopping and reference.

Deeply Integrated with the Windows Store. The Windows Store is seamlessly integrated into the fabric of Windows, providing access to thousands of tailored web apps. Windows recommends apps for you based on a broad community of recommendations and ratings, the sites you visit, the apps you and your friends already use and the kinds of things you're doing with your PC.

Great Apps. Windows, Windows Live Wave 5, IE, and E&D together raise the bar by building best-of-breed tailored web apps, delivered at the same time as the release of Windows 8, for reading, browsing, photos, social, communications, e-mail, blogging, and entertainment.

Personality. The tailored shell includes a new personality for Windows—one that embraces rich typography, layout, motion and is harmonious with Microsoft's evolving aesthetic point-of-view.

InPrivate Mode. InPrivate Mode for the tailored web enables customers to extend private browsing beyond the web browser to all of the tailored web apps on the system.

<div align="center">FOUNDATIONS OF A MODERN PC USER EXPERIENCE</div>

Designed for Touch. The tailored web experience deeply embraces the unique capabilities of multi-touch to provide a more natural experience for the user.

Entertainment on Every Screen. Tailored entertainment apps play music and video natively and seamlessly to all the DLNA-enabled devices in your home: TVs, game consoles, receivers, and other PCs. Building on *Play To*, the tailored web experience is great at helping you easily direct audio and video anywhere in your home and providing a compelling companion experience on the PC.

A Personal Experience, on Any PC. When logging in with your Windows Live ID or other compatible ID services, Windows 8 remembers your preferences and settings—the apps that you use, where your stuff is, and the people and devices you care about—and roams that experience to any Windows 8 PC you log in to.

First-Class Input, Any Language or Form Factor. Entering text is easier than ever through graceful keyboard and IME mode switching, with particular emphasis on touch input and handwriting. Language preferences are vastly simplified, with predictable consequences in the behavior of Windows and applications. New linguistic services, such as spell check and word breaking, make for a powerful and seamless text input experience for Windows and its apps.

Accessible. Windows continues to be the most broadly usable experience for people with disabilities, with extended support through a first-class, accessible experience for the tailored web.

<div align="center">CONNECTED, REAL-TIME, AND OPEN</div>

Alive with Activity. This tailored mode feels alive with activity. Customers are surrounded by relevant information about the people and things they care about and are peripherally aware of what's going on in the apps they often use. A rich notifications platform enables apps to communicate with the customer at all times, but customers remain in control of the experience. Apps always feel alive; people don't perceive "running" or "not running" in this mode.

An Open Search Experience. Search is the most ubiquitous interface paradigm in the world and in Windows 8 customers rely on search to explore the breadth of content within the tailored web. Every installed app can provide access to search the content it knows about, and Windows makes it easy for customers to find what they are looking for wherever it is: on the PC, the HomeGroup, the web, or within tailored web apps.

Apps Together are Better. Windows provides the glue that bonds tailored web apps together, connecting them for the user in meaningful ways. Apps can expose their capabilities and data to Windows and connect these to Windows Live, or other compatible sharing services, to enable scenarios like sharing, surfacing of activity, context and deep linking between apps.

My People are With Me. Despite the hundreds of "friends" many of us have on popular social network sites, research shows that most people care deeply about only a small handful of people. The Windows tailored web experience connects to Windows Live, and other compatible social services, bringing people into the user experience and across installed apps, making it easy to be peripherally aware of what the people I care about most are doing and to connect with them.

ENGINEERED FOR TAILORED WEB DEVELOPMENT

Windows has been a cornerstone of the computer industry for quite some time, with a broad and diverse spectrum of engineers and designers creating an equally diverse set of devices and applications. Traditionally, Windows developers have been excited about challenging the conventions of

human/computer interaction and developing experiences that take full advantage of the raw performance, system capabilities and integration of hardware and software stacks.

However, in today's world, the web is an increasingly central part of how customers use computing devices. Given the broad customer reach, the ease of deployment, and the potential for monetization on the web, developers—particularly new developers entering the market—have focused intently on the web and have utilized the standards-based web technologies of HTML, CSS, and JavaScript. Today, Windows offers very limited value to web developers, who cannot use web programming models for reliable access to the capabilities of the rich client.

In Windows 8, we will blend the best of the rich client with the ease of deployment and openness of the web platform and enable developers to easily create, sell and deploy applications that take advantage of native system capabilities such as touch, media, hardware acceleration, connection to devices and services, as well as the capabilities of specialized PC form factors.

Windows Live continues to be an important showcase for our Windows offering and a growing part of our platform message. Windows Live focuses on being a premier developer for Windows and provides additional services, including Windows Live Connect, which developers can use as they build their applications.

IMPROVING THE APPLICATION MODEL FOR WINDOWS 8

Tailored Web Applications. Windows developers will build and publish a new class of applications engineered for the modern PC experience. Applications continue to be as diverse as our customer base and as inventive as our broad developer community. These new applications reflect the lifestyle of people, enabling them to personalize their PC and meet their needs in areas such as entertainment, reading, social networking, photography, communication, e-mail, and blogging. Most applications are connected to the Internet, integrating with Windows Live and other Internet services to enable richer social interactions and access to information and content stored in the cloud. Apps, which can be tailored to unique Windows form factors and the customer activity, are optimized for touch as the primary method of input, and they share common gestures for navigation and other UI operations. The state of applications can easily and effortlessly migrate among a customer's Windows-based devices using the local network or using Internet services. Windows Live and our partners in E&D deliver a set of applications that help us verify our platform investments and set the bar for the rest of the developer ecosystem.

Acquiring Apps is Easy. The new Windows Store provides a trusted place to match customer needs and interests to thousands of relevant applications and other digital content. The store facilitates a direct revenue stream for developers. The community recommendations and ratings help customers decide which apps best meet their requirements. Our new, Windows 8 application model makes running new applications from the Windows Store as easy as clicking a link on a web page. Managing applications and their impact on the system is as effortless and transparent for the user as downloading and removing files.

Programming Language Independent Platform. Our modern, Windows 8 developer platform maintains and improves our native application programming interfaces (APIs) for developers, who are looking for performance and the ability to exploit the unique characteristics of the underlying hardware. Our native API surface moves to a consistent application binary interface offered by an improved COM layer, which provides first-class exposure of our rich platform in higher-level frameworks such as HTML, CSS and JavaScript, thus enabling a web developer to easily create a Windows application. These APIs are more aware of modern hardware and scenarios by supporting increased security, improved asynchronous behavior and a more robust approach for error handling. We support the set of Windows APIs required to create tailored experiences in this API set.

Enhanced Windows Presentation Platform. The presentation subsystem comprises a key part of this language independent platform. Our immersive experience for consuming the web and the applications tailored for it creates a new set of requirements on our presentation technologies. Fluid transitions and animations, key to establishing the Windows 8 personality, drive improvements in our composition and animation engine. The HTML rendering component is hardware-accelerated through DirectX so that web developers benefit from the scalability provided by modern GPUs. A new set of controls and user interface elements optimized for touch interaction and accessibility are an intrinsic part of our platform, are available to developers writing both native and HTML applications and are used within Windows. Solutions to complex problems such as broad and scalable media playback and streaming are provided right out of the box.

Streamline Access to Hardware Devices. Developers of both web and native applications can safely and efficiently access Windows-based devices locally or across the network, while respecting and preserving the privacy and security of the user and the system. Access to printers, TV and DLNA-based media playback, accelerometers, motion sensors, ubiquitous wireless connectivity and other devices establish a foundation for modern, contextually-aware and connected applications that are engaging and relevant to the user. Developers directly utilize key new hardware trends, such as presence detection with a camera and stereoscopic 3D, using the Windows platform, and Natal navigation is available via the Games for Windows platform.

Reinforcing Tenets. We hold our developer kits containing our public APIs and code samples to the same quality bar as the rest of our product code. Every public API is fully annotated to enable our state-of-the-art static analysis tools to detect common security attacks and is accompanied by sample code, comprehensive documentation and test collateral. We follow best practices outlined in our coding conventions and ensure that all of our new APIs are designed with consistency, transparency, responsiveness, performance, reliability and compatibility in mind. We pay close attention to architecting our new APIs so they follow accepted industry standards where applicable. The quality of our platform and tools and engineering discipline help reinforce our point of view with the Windows developer community.

STREAMLINED DEVELOPER EXPERIENCE

Getting Started. Our updated developer web presence provides clear guidance about how to get started with Windows development, where to acquire appropriate tools and developer kits and how to

implement end-to-end scenarios with available technologies. We highlight best practices to achieve reliable and effective user experiences and help engineers build applications and drivers that are secure and fast. We ensure that key content, code samples and tools are well organized and easy to find through web search engines. The on-boarding and updating experience for the Windows Store is simple, transparent and well supported by our tools, providing a clear path for connecting with prospective customers.

State-of-the-Art Developer Tools. In partnership with the Developer Division, we deliver industry leading tools for building applications targeted at our Windows 8 experience and the underlying developer platform. The latest advances in design tools are available to the broad base of engineers and artists creating content for the standards-based web. Our tools make developing, debugging and profiling HTML, CSS and JavaScript accessible to developers with a wide range of skills. Our improvements in COM, compiler technologies and the Visual Studio IDE enable C/C++ developers to focus on capturing the essence of their ideas, instead of working through repetitive and tedious tasks. We introduce better tool support for debugging and developing DirectX-based graphics and technical computing applications. Design and developer tools help reinforce best practices in creating applications that conform to our new app model and assist in getting these apps published to our Windows Store.

CONNECTED AND READY TO USE

Connectivity is the oxygen of digital life. People expect to connect to people, websites, data, devices and applications whenever and wherever they want. They don't want to think about connecting, they expect to just _BE_ connected. They're frustrated if connectivity is cumbersome or unreliable.

To provide connectivity our industry has relied on wired ISPs, Wi-Fi networks, Virtual Private Networks, web services and (mostly) wired devices. But connectivity is changing rapidly. One of the biggest changes is the emergence of 3G, LTE and WiMax, which are enabling mobile operators to offer Internet connectivity anywhere on computers, mobile phones and other portable devices. Desktop virtualization is enabling mobile workforces to access corporate resources securely. Wireless technologies are increasingly used for device-to-device interaction. This hyper-connected world is driving rapid growth and evolution of web services and applications.

Innovation in connectivity offers lots of promise, but it also introduces complexity. For example, different networks have different constraints and cost structures, making it hard to deliver a consistent customer experience on every network. Once customers are connected to the Internet, they increasingly need to remotely connect to work or home. Enterprises are struggling to secure corporate data while providing connectivity to a flexible workforce, one that's using a wide range of PCs and devices on and off premise. Internet service providers and hosters are seeking cost-effective ways to provision and run flexible data centers. Simple and stable connectivity between wireless devices remains a challenge. And structural changes within the Internet—such as IPv6 addressing, internationalized domain names, changing DNS infrastructure and alternative DNS services—are introducing new complications.

Windows 8 PCs meet these challenges by easily connecting to people, places and data over any network; making network and device connectivity snappy and responsive on a wide range of hardware; intelligently managing network resources; delivering on the promise of connecting to work or home from anywhere; creating rich and delightful scenarios with wired and wireless devices; providing hosters

more economical options for scaling their services; giving organizations the network policy controls to meet their security and compliance goals; creating more opportunities for Telco, retail and IHV partners to participate in and profit from the Windows experience; and offering programmers the ability to use the most important functions of Windows network and device capabilities in modern applications.

EASILY CONNECT TO THE BEST NETWORK

Service Enabled Log-on. Logging on to Windows with a Windows Live ID, or other compatible identity service, enables simple connection to the networks and resources customers care about because Windows knows them. Key capabilities include the integration of Windows security technology with Windows Live ID, strong authorization and dual-factor authentication.

Intelligent Connection Manager. A robust connection manager simplifies the experiences of getting connected and managing connections, networks and radios; keeps customers aware and in charge of data usage; and provides branding and extensibility features that encourage mobile operators and retailers to invest in Windows 8. To do this, Windows 8 naturally integrates 3G, LTE and WiMax connectivity; provides the ability to automatically connect to the most cost effective network; and enables customers, Telcos or Windows to regulate activities on costly networks.

Fast, Light and Right. This is the feeling Windows 8 customers have due to our rigorous focus on networking fundamentals, including enhanced power efficiency; reduced bandwidth, latency and jitter; faster boot time and enhanced responsiveness of IE and network-aware applications. Networking and wireless technologies are available on supported SoC platforms.

Enhancements to HomeGroup. Using Windows Live, or other compatible sharing service, Windows 8 makes it easy to remotely access and use HomeGroup PCs and devices; recover lost or deleted files; and invite other people to access files and devices in your HomeGroup. Customers who use Windows Live or another synchronization service have the ability to sync folders across HomeGroup PCs.

EASILY CONNECT TO AND MAKE THE MOST OF DEVICES

Connected Devices. Devices are easy to set up, delightful to use and are useful with Windows out-of-the-box through features such as Short Message Service (SMS), setting time zone based on location and simply using a webcam to capture photos and video. Device experiences offer great opportunities for partner customization.

Support for Cutting-edge Devices. Windows provides fresh, modern experiences with native support for light, location and proximity sensors; accelerometers; USB3; and low-power Bluetooth profiles. Proximity awareness makes wireless pairing amazingly simple for keyboards, mice and monitors. Key device technologies are also available on selected SoC platforms.

Printing is Simple and Manageable. Because installation is easier, all print-related experiences are integrated with Device Stage, and it's easier to find and share printers. Improvements to network printer availability, performance, reliability and manageability make Windows print servers more attractive.

Work Anywhere. People in organizations can work anywhere through client and server products that offer improvements to Direct Access deployment and scalability; centralized data storage and sync; and improved roaming of settings, with the ability to allow seamless connection to corporate and private data while meeting corporate security policies on the managed laptop. For organizations that choose to keep information within the walls of their data centers, Windows 8 and Windows Server 8 provide a comprehensive solution for hosting a Virtual desktop infrastructure (VDI). Windows 8 further supports work anywhere through data isolation, a rich portal experience, high-performance remote desktop and applications for the centralized workspace, load-time verification, Bit-Locker storage on UFD, and boot from USB for the portable workspace. Updates to Microsoft desktop optimization pack (MDOP), Forefront Unified Access Gateway (UAG), and System Center Configuration Manager (SCCM) reflect the new functionality provided in Windows 8 client and server.

Software-controlled Data Center Networking. Windows 8 offers a range of advantages for organizations and hosters, including scalability and reliability improvements such as SRIOV for high-performance network virtualization; NIC load balancing and fail over; enabling the use of commodity storage and switching hardware to reduce data center capital costs; and flexible software-driven deployment, configuration, security, telemetry and management of dynamic, complex workloads.

Windows is Efficient to Manage at Scale. It's easier to manage scale installations of Windows due to a range of client and server enhancements in Windows 8. Modern naming services provide faster and more secure access to Internet resources through support for location, enhanced IP and MAC address management, internationalized domain names and improved manageability of DNS/DHCP servers. Web data delivery is more efficient with HTTP enhancements for IIS scalability. Enhanced branch optimizations simplify collaboration, cloud services and management. PowerShell automation additions provide easier and faster configuration of servers.

ENHANCED WITH SERVICES

Web services are an established part of daily life, connecting people, devices and information in a diversity of contexts—home, work, and in between and in an increasing number of geographies. Seamless web services that understand context can move software from the mundane to the modern.

Services help realize the promise of connected technologies, dynamically delivering digital assets—content, media, applications—into contexts that delight customers. Services enable feedback loops and improvements over time, demonstrating customer-driven decision-making, founded in data, and ensuring that the experience becomes increasingly relevant and richer.

Customers expect integrated services to help get the most out of their PCs and devices and to provide a singular, seamless view of the entire Windows Experience, across the Windows client, Windows Live and Internet Explorer. Partners have come to rely on services to deliver greater software business value, differentiation from competitors, and to establish loyalty relationships with customers in a time of decreased margins and price deflation in the software and hardware business. Extending partner access

to customers across Windows, Windows Live and IE increases ecosystem incentive to deliver on Genuine Windows.

Services in Windows 8 enhance the customer experience when a connection is present, while respecting a quality baseline experience in a disconnected state. Windows 8 services help us connect with customers, understand their needs and pain points, and enrich their experience over time through dynamic, contextual delivery of content and applications relevant for their locale and in their preferred language.

Windows 8 partners benefit from targeted telemetry that helps them understand the customer experience with their software and services, realize new reach and revenue streams for their offerings and elegantly integrate their brand and services as vital members of the Windows ecosystem.

Windows 8 services support the Windows business by providing platform for modern digital marketing, increasing revenue per license through friction-free upgrade, establishing a clear Genuine value proposition and increased anti-piracy hardening, and ensuring Windows is delivered in the languages of our billion customers.

Windows Live continues to offer services for customers that they can choose to enhance their Windows experience, including identity, contact management, e-mail, photo sharing, and connection to your social networks. We expect improvements to these services to be covered in the Windows Live Wave 5 vision document and we design Windows 8 assuming that customers connect Windows to Windows Live or other compatible service.

<div align="center">SERVICES FOR CUSTOMERS</div>

Windows Online. The Windows website (http://windows.microsoft.com), and its integration with the client helps customers discover the full value of Windows, Windows Live and IE throughout the PC lifecycle. Using our agile publishing platform, we market Windows to target audiences and connect the Windows community worldwide through a modern web experience. Business intelligence allows us to identify customer needs and engage in a rich feedback loop. The integrated Windows 8 Help Hub is a portal into the Windows Online experience, increasing customers' understanding of how to maximize and personalize their experience and delivering targeted solutions that reduce downtime and increase confidence. Partners can extend the Help Hub to ensure customers have access to the right support assets and services.

Continuous Publishing. Audience-tuned content ensures developers, our channel partners, and consumers have the information they need to get the most from Windows, Windows Live, IE and Windows Server. Our content creates a rich fabric of information our customers and partners use to learn and make choices. Delivered continuously and in response to customer data, our content helps grow satisfaction and loyalty.

Compatibility Center. The Windows Compatibility Center plays a key role in customer acquisition and satisfaction. Customers that use the service show significantly higher purchase intent and satisfaction than upgrade customers that don't. The Windows 8 Compatibility service integrates a set of checks into the product setup and Anytime Upgrade process, providing actionable guidance that removes fear and doubt from the upgrade experience. Customers can go to the Compatibility Center to determine which

of their products are ready for future versions of Windows on their existing hardware and get downloads and reference information.

Windows Store. The Windows Store, available only for Windows 8, is the best way for developers to monetize their software offerings. Developers can easily discover information on how to build a Windows application and publish that application quickly in the locales of their choice. The Store on-boards software to ensure a base level of security, compatibility, and appropriateness. Developers understand the requirements for on-boarding and what they need to do to meet the quality bar for the Windows Store. As their software becomes available to consumers, developers receive useful telemetry to inform future improvements. Channel partners are able to brand the store, recommend software to their customers for specific hardware, and realize direct revenue. Consumers discover and acquire best-in-class, trusted applications from the Windows Store. Effective search, recommendations and integrated, contextual suggestions allow them to find software for specific needs and interests. It's seamless to try software before buying, seamless to own and update apps and seamless to remove software. Customers can use the software they've acquired on any PC. The Windows Store is operated to break even for Microsoft, with revenue flowing primarily to the developer and channel partner; it's not a new stand-alone business.

Metadata Services. The Windows 8 media and devices experiences light up with contextual, current, relevant data through the Windows Metadata Information Service (WMIS). WMIS enriches and personalizes the customer experience and affords partners opportunities to reach customers with content and services and to introduce additional revenue streams.

Ecosystem Services. Through a centralized Web experience and streamlined tools and services, Windows 8 hardware and channel partners understand Microsoft is committed to helping them realize their engineering and business goals. Our hardware and OEM partners have an audience-aligned location to find the right high-quality tools, samples, documents and services defining modern, streamlined engineering methods. Partners have the metrics and benchmarking necessary to understand engineering tradeoffs. We drive quality upstream in ecosystem engineering by ensuring partners have lighter test execution tools; cleaner logging; scenario-based quality definitions and authoritative content; a clear minimum for Logo, with optional above-the-line tiers; and a modern driver development kit with Visual Studio integration.

Genuine. A Genuine copy of Windows 8 is easily differentiated from non-Genuine Windows through a clear value proposition. During the configuration process, systems are validated to confirm they haven't been victimized by a pirate. Non-Genuine systems can become Genuine through easy, integrated online purchase. Genuine Windows 8 is the full Windows experience, while non-Genuine Windows customers experience limits to system personalization. The Genuine service stays out of the way, but provides new and innovative disruptions to the commercial piracy criminal enterprise. Self-healing licensing binaries, improved in-box validation components, new validation triggers and security hardening of our detection logic combine to inhibit piracy. In the enterprise, Windows 8 activation and validation technologies

reduce the costs associated with license management. Government customers who demand complete transparency into our activation technologies find increased comfort in the ability to fully manage their license states without fear that Microsoft might invalidate their systems.

Windows Anytime Upgrade. The Windows Anytime Upgrade service enables customer to get Windows either electronically or through packaged product (FPP). System, application and device compatibility is clearly identified as part of the online purchase experience, and the upgrade to Windows 8 is fast and fluid. Customers are in control and can easily move just what they want from the old system to Windows 8, with an improved setup experience that integrates selectable migration into the core flow. A "Reboot into Windows 8" option for Tech Guarantee and pre-orders supports our most enthusiastic customers. Enterprise customers find increased agility in their ability to deploy and manage their deployed components with on-demand functionality through remote component stores. This enables deployment scenarios such as branch deployment in low bandwidth environments and self-healing of corrupt system binaries.

Windows Everywhere. Our localization and globalization services deliver Windows and Windows Online in more languages, with greater efficiency, higher linguistic quality, and lower cost. An Extent of Localization (EOL) strategy, aligned with tooling support for more fine-grained localization control, enables rationalized localization decisions that align with business and market-specific objectives. Greater concurrency in both software and content localization enables greater agility, with the ability to simultaneously ship more languages with reduced latency.

APPROACHING CONSUMER ELECTRONICS QUALITY

In the early days of the PC, most people who owned a computer were hobbyists or technical enthusiasts. As enthusiasts, their expectations were generally low around how much maintenance, repair, and tinkering were required to keep PCs running well. In fact, the amount of skill and know-how to keep a PC in top shape was often the source of bragging rights and status among enthusiasts. As the PC became more mainstream, this overhead didn't decrease significantly, and non-enthusiasts were forced to deal with maintenance as well. Individuals and businesses began to grow increasingly frustrated with the maintenance overhead, but they didn't have many great examples of complex consumer devices for comparison. There were relatively few complex electronics in general, but those devices that were popular—such as VCRs, camcorders, or stereos—often had similar challenges (for example, many people's VCRs always displayed "12:00" because they were often too difficult to program).

As time went on, more consumer electronics began to enter people's homes and workplaces. These became increasingly smart devices with tailored experiences, and today it's not uncommon for people to have a number of sophisticated electronic devices that they use frequently—digital cameras, smartphones, game consoles, portable music players, e-readers. Many of these devices deliver simple, consistent, and high-quality experiences for customers.

By contrast, the PC has not kept pace with these improvements and is generally considered a more complicated and fragile device, which can perform unpredictably. Windows 8 PCs close the gap between

the hobbyist device of the past and the consumer-oriented devices of the present and future and deliver an experience that offers all of the power of the PC coupled with the ease of ownership of a consumer electronic device.

The Windows 8 PC is easy to own and operate, from the day it comes out of the box to the day the owner decides to retire it. Building such an experience starts with our partners, who design hardware, drivers and applications that are a considerable part of the customer experience. To deliver a great PC to customers, we ensure these partners have the tools and data they need to create and deploy Windows images, assess their quality and solve any problems discovered. In many ways this is a journey that started with Windows 7, where we took a major step forward with both in-box quality and with the work we did with our partners to deliver great systems. Windows 8 takes the next step, with additional capabilities built into Windows as well as tools to help our partners deliver high-quality systems. Hardware platform investments and shared bets with our silicon partners, OEMs, ODMs and IHVs increase system quality. These investments result in the most stable, responsive, power-efficient and low-maintenance Windows we've ever produced, running on systems that take full advantage to deliver a quality experience that matches that of consumer electronics.

<div align="center">

EASY TO OWN

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Optimized for "Always On." Windows 8 PCs turn on fast, nearly instantly in some cases, and are ready to work without any long or unexpected delays. When customers want to check e-mail, sports scores, or play media they don't have to reach for their smartphone because their PCs can get to what they want quickly. We optimize the on/off code paths for supported architectures, streamline resource usage and tune device power utilization. Close work with our ecosystem partners allows us to take full advantage of new platforms and devices. Battery life is much more like other common consumer devices, delivering a full day or more of typical usage, with the ability to standby for days or even weeks on some devices.

Consistent Quality. Windows 8 PCs provide more consistent performance, reliability and battery life over the lifetime of the device. These characteristics don't degrade or oscillate. Xbox and Zune aren't fast one day and slow the next, and Windows 8 PCs aren't either. We improve CPU, memory, and disk utilization and minimize contention on certain locks to achieve consistent responsiveness. Reliability of the Windows 8 software environment changes little or not at all over time (barring hardware failures). Additional diagnostics and telemetry detect and improve reliability of the system with no interruption to the customer except for critical hardware problems such as memory or disk failures.

Push Button Reset. Even on the best devices, things can go wrong. Windows 8 customers can reset the OS to a known good state with a single easy action. The new PC reset capability quickly gets customers back to a good working state, preserving their data and applications so they can return to what they want to do.

Doesn't Put Me at Risk. Customers don't expect their identity and data to be at risk simply by using consumer electronics. They should feel safe when using the full capabilities of their PC without fear of losing the things they care about most—their personal information, photos, and documents. Windows 8 helps customers better identify security issues posed by unknown or untrusted applications. Reduced User Account Control (UAC) prompts from system activities and known non-malicious applications helps customers single out real issues from false positives. Customers can browse and consume data from the web or tailored apps without fear of exposing private information.

Enthusiasts Can Still Be in Control. PC enthusiasts remain a vibrant customer segment, and Windows 8 supports their usage needs via an improved Task Manager and other controls that allow deeper drilling into the system. Enthusiasts use Windows in ways that consumers don't, and Windows 8 has greater support for advanced tasks, such as mounting ISO files, booting from USB, managing disks, improved multiple monitor support and managing large file collections.

<div align="center">EASY FOR PARTNERS TO MAKE A GREAT WINDOWS PC</div>

Deploying and Updating Images. Windows 8 is easy to deploy by partners onto test systems, images on their factory floor, or enterprise desktops. We advance our ability to update Windows components without resetting the image and improve tools to deploy and manage the images.

System Quality Assessments. Once partners have built their images, they need to measure quality to understand how well the hardware, drivers, apps and settings have come together. We provide assessment tools and tests to help them measure their system image and drill into the results. Findings can be shared among partners and with Microsoft, to get to the heart of any problems before products and services reach customers.

<div align="center">EASY TO MANAGE</div>

Lowered Maintenance. Windows 8 PCs don't give customers chores to keep the systems running well. Maintenance tasks and updates run at a time when the customer isn't using their PC, avoiding interruption. No extra actions are required to keep the device running well. Software and firmware updates happen automatically, with minimal impact.

Multi-PC Management. Working closely with the Windows Home Server team, we bring Windows 8 home and small business customers the power of Home Server to allow easy backup and restore, data access and sharing, and PC management capabilities without requiring an additional stand-alone device.

FUTURE-PROOFING THE OS

One of the greatest strengths of Windows is its versatility. Windows runs on hardware ranging from netbooks to huge multi-processor servers, in roles spanning touch-enabled PCs in the home to massive databases in the enterprise. To make this possible, we build Windows on a powerful set of core services that deliver performance, scalability, reliability and security across a wide range of form factors, user scenarios, and server workloads. And, as the industry innovates in the core components of computing—such as processors, networking and storage technologies, as well as device types—investments in the core of Windows 8 ensure that Windows remains the leading way industry innovations reach our customers. This allows us to benefit from the innovation our partners deliver and enables great new products, only a fraction of which we can imagine today.

There are several current trends that will have a particularly significant impact on the core of Windows in the Windows 8 timeframe. System on a Chip (SoC) vendors are delivering new offerings that enable emerging form factors such as slates to rival the capabilities of today's PCs. Virtualization technologies are redefining the boundary between the operating system and the hardware on which it runs and the way that companies deploy and manage both their servers and clients. Further, customers tell us their

use of virtualization technologies will grow dramatically. The price of commodity storage is plummeting at the same time that storage use is exploding in both consumer and business settings. And new security technologies are emerging that will affect the way customers experience computing in the future.

Each of these trends will shape the marketplace into which we deliver Windows 8. Our investments in future-proofing the core ensure we're well-positioned to compete with a wide range of innovative device types, take a leadership position in scalable computing architectures based on commodity hardware and devices, and strengthen Windows as a secure, trustworthy platform.

MODERNIZING OUR PLATFORM ARCHITECTURE

SoC Support. Windows 8 supports System on Chip (SoC) form factors and ensures we compete with a wide range of innovative device types. The ARM instruction set architecture (ISA) leads the SoC market, requiring a Windows investment in ARM, including new tooling to support ISA diversity. In addition to general porting, our work on Windows device management, boot processes, interfacing with firmware and capabilities for a connected Windows experience are based on assumptions about standards. Through new extension endpoints, we enable hardware partners to build devices that surprise even us with their diversity and creativity.

System Layering. The layered Windows Core System architecture increases Microsoft's agility when building new products based on Windows. Our focus on refactoring Windows components simplifies servicing, reduces attack surfaces and on-disk footprint and improves performance.

ENABLING INNOVATION IN VIRTUALIZATION AND STORAGE

Hyper-V For Windows Server. Our investments in Hyper-V for Windows Server support key customer scenarios, strengthen our competitive position against VMware, and continue to drive (and benefit from) hardware innovation. These include performance and scalability enhancements such as memory over-commit and page sharing, increasing the supported number of logical processors, as well as support for service-level management of storage and networking resources. Our support extends to specific requirements of virtual desktop infrastructure (VDI) deployments, where companies run Windows clients on datacenter servers within virtual machines. We also deliver improved ways to replicate data between systems at the block level to facilitate moving VMs seamlessly between physical servers—an important requirement for many so called *private public cloud* datacenter scenarios.

Hyper-V for Windows Clients. In Windows 8, we bring Hyper-V to Windows client machines, focusing on development and test scenarios. Hyper-V on client machines supports snapshots, multiple processors, 64-bit guest OSs and great I/O scalability. This powerful environment enables developers to run, test and debug multiple machine environments on a single PC—even when that PC includes the installation of Windows they use day to day. Of particular interest to enterprises, Hyper-V on client machines can load .ISO and .VHD files from conventional file servers, and we provide unique capabilities to manage and service the Hyper-V virtualization environment itself.

Modernized Storage. For many enterprise and hoster scenarios, including those involving virtualization, storage costs are easily the biggest expense. In Windows 8, an updated, modern NTFS file system will provide data integrity and resiliency to failures, comparable to expensive, enterprise-class storage systems. These improvements will scale from the data center with huge disk arrays down to home

computers with commodity disk drives, keeping safe our customers' most precious asset—their data. The modernized block storage stack includes introducing software disks and port driver parity. These enable Windows to deliver substantially improved manageability and to accommodate new storage technologies such as large-sector drives, self-encrypting disks, next-generation SSDs, converged networks, new high-speed I/O interconnects and multi-terabyte storage media. Because the majority of scenarios support hosters and enterprises, we will target Windows Server for the modern storage stack.

<div align="center">MODERN SYSTEM SECURITY</div>

Modern Logon Experience. Windows 8 provides rich support for strong authentication and biometrics, delivering a modern, fully accessible logon experience that enables a secure gateway to customers' digital world. A customer's online identity is their Windows identity, and Windows uses it to provide a personalized, familiar, frictionless experience across all of their Windows devices.

Data Protection. Enhancements to BitLocker deployment and management make it easy for enterprises to use BitLocker across servers, clients, and removable storage devices to help with their data protection and business compliance needs. This includes support for newly-emerging hard drives that provide built-in hardware-based encryption support.

Platform Integrity and Isolation. In Windows 8, we significantly enhance the ability for the OS to protect itself against malware and compromise. From strong process and window isolation, to ensuring known-good, signed anti-virus drivers load before malicious code can, Windows 8 is positioned to provide a safe, secure online experience.

Flexible Authorization. In concert with Windows Server, Windows 8 integrates support for claims-based access controls to greatly simplify the challenges that enterprises face in managing compliance and access to their data. In Windows 8, IT Professionals can protect resources by creating policies based on a user's or resource's attributes (such as location, cost center, or how they logged on), and they will know that policies will be enforced in real time.

Secure Online Banking. As banks improve their protection against simple password-based attacks, attackers are developing far more sophisticated, targeted methods of compromising online banking. In Windows 8, we provide an online banking experience that protects customers and banks against most common attacks. As a result, customers and banks trust and recommend Windows as the preferred online banking platform.

DELIVERY TO CUSTOMERS AND PARTNERS

Windows is the flagship product for Microsoft and serves a diverse, global audience. Each release of Windows strives to appeal to a broad cross-section of Windows customers that have dramatically different needs and wants. Windows 8 will be used by school children in China, IT Pros in the United States, small business owners in Germany, Internet cafes in India, multi-national corporations and by every other imaginable type of customer worldwide. The broad and deep scope of Windows 8 innovations provide value to this diverse set of audiences and help ensure that Windows remains the preferred platform for client computing in every locale. This section maps the scenarios of the Vision Pillars across our customer and partner audiences.

Consumers and Small Business. Consumers can be broadly grouped as mainstream, enthusiasts, and in emerging markets. While Windows 8 continues to deliver great scenarios for mainstream consumers, we are investing more than ever in ensuring we have a product that delivers for consumers in emerging markets and for enthusiasts who want to get the most out of their PC. Small businesses represent almost a quarter of Windows sales, and this audience has perhaps the most diverse set of needs, depending on the type, size and location of their business, and whether they have a server that supports managing multiple PCs.

Mainstream Consumers	Enthusiasts	Emerging Markets	Small Business
Value Prop Statement			
Windows 8 brings you an experience you can call your own, which spans the PC and the web, always connected to the people, devices, and stuff that are important to you.	*Windows 8 puts you in control of your PC, making you more efficient and empowered, enabling you to do things you've never done before.*	*Windows 8 is a modern and global release that brings locally relevant content and applications to you, enabling you to do things you've never done before.*	*Windows 8 enables small businesses to increase productivity, collaboration and data protection and to enjoy hassle-free maintenance across multiple PCs.*
Designed for a Tailored Web Experience			
Great immersive and personalized experience for consuming the web on any PC Modern touch-first shell, play music and video on any DLNA-enabled device at home	Same as mainstream	All of mainstream plus: First-class IME language support, simplified language preferences, new linguistic services including spell check and word breaking	Same as mainstream
Engineered for Tailored Web Development			
Trusted, high-quality applications Quick-install apps are always up-to-date and virus-free	**Sophisticated applications for gaming and media** Hardware acceleration, camera presence, 3D, Natal	Same as mainstream	Same as mainstream
Always Connected and Ready to Use			
Seamlessly connect to all your networks and stay protected Windows Live logon, Intelligent, easy network connection management, access HomeGroups from anywhere, easy device setup	**Cutting edge device and network and sharing support** Stream content, multiple HGs, Live ID-based sharing, support for modern sensors, USB3	**Easy to control your network costs and to protect your data** Control over bandwidth usage: no overage charges	**All of mainstream plus:** Multiple PC management, work from home, back to my work PC, flexible telework
Enhanced with Services			
Get the best out of your PC throughout its lifecycle Seamless upgrade, Windows Store, Windows Online, Compatibility Center	**All of mainstream plus:** Integrated community services, Help system enables you to show community leadership	**Locally relevant:** Community services tailored to market, connected and dynamic IME, easy to identify and get Genuine	**All of mainstream plus:** Easy self-help, support business productivity with apps from the Windows Store
Approaching Consumer Electronics Quality			
Optimized for always on Windows turns on and off quickly, battery lasts all day, long-lasting PC quality	**All of mainstream plus:** Improved Task Manager, ISO mounting, efficient file management, task-based performance management	Same as mainstream	**Hassle-free maintenance** On/Off performance, system responsiveness, multi-PC management
Future Proofing the OS			
Safe and easy online login and identity Secure online banking, data and identity are safe, auto log-on to websites	Same as mainstream	Same as mainstream	Same as mainstream

Enterprise and Mid-market. There are three important audiences in the enterprise space: IT Decision Makers (ITDMs), IT Pros and Information Workers (IWs). In large businesses with dedicated and specialized IT management needs, IT is the strongest voice in platform decisions. ITDMs play a key role in platform decisions, heavily influencing the decision-making process and managing the budget for IT projects. IT Pros also influence the platform decisions since they ultimately have to implement and provide the daily management of the technologies in their environment. IWs are typically not directly involved, but can influence platform decisions as the predominant user base in corporate environments. Windows 8 must deliver a strong value proposition to this audience as well to help pull technology into the business, a process known as the *consumerization of IT.*

Information Workers	IT Decision Makers	IT Pros
Value Prop Statement		
Windows is the operating system for today's always connected and mobile world—it keeps you hassle free and productive from anywhere.	*Windows 8 allows you to deliver the most productive, secure and cost efficient desktop environment to support the dynamic needs of your business.*	*Windows 8 helps make your work easier and support your business users more efficiently through fewer disruptions for IT and the business.*
Designed for a Tailored Web Experience		
Works the way you work Apps are easy to get and use, Windows apps are cool, personal experience makes you feel efficient, smart and in control	**Connects your people to the devices and applications they care about most** Building great applications, modern device access and sharing	
Engineered for Tailored Web Development		
	Best platform for developing line-of-business applications Low-cost application development and deployment, bring richness to web apps	**Simplified application management** Deploy and update is as easy as the web, app model includes telemetry, easy to roam user settings, click-and-run streaming install for native code apps
Always Connected and Ready to Use		
Easy to connect to what I need seamlessly and efficiently Simple, secure, frictionless ability to work from anywhere; one simple workflow to connect to anything; seamless, smart network roaming; connect to HomeGroup from anywhere	**Connects your people to the information and services seamlessly and efficiently** Simple, secure, frictionless ability to work from anywhere; one simple workflow to connect to anything; seamless, smart network roaming	**Turn-key enablement of work anywhere for mobile employees** Mobile managed laptop, remote, provisioning, portable workspace **Improved software-controlled data center networking efficient to manage** Address management, Internationalized domain names, enhanced branch optimizations and server configuration
Enhanced with Supporting Services		
Helps me resolve simple issues myself Connected help and support		**Reduce help and support costs of my corporate PCs** Customization of help hub, licensing
Approaching Consumer Electronics Quality		
My PC is easy to use like my other consumer electronic devices Data and identity are not at risk, efficient file management	**Higher quality and simplified maintenance lowers costs and keeps my users up and running** Consistent quality, hassle-free maintenance	**A responsive, reliable desktop environment that requires less IT maintenance** Consistent quality, hassle-free maintenance, push-button reset
Future Proofing the OS		
		Next-generation Technologies Next-generation SSDs, self-encrypting hard disks, developer client hypervisor

OEMs, Retail and Telco Partners. For the majority of our customers, Windows is delivered via a pre-installation partnership between Microsoft and PC OEMs. In Windows 8, we deepen this partnership in areas such as initial quality, more efficient manufacturing, differentiation and new hardware innovations. We deliver post-purchase revenue opportunities such as the Windows Store and streamlined support that utilizes the expertise of the Windows community. These efforts reinforce to our OEM partners that Windows 8 is the software platform choice for their differentiated, next-generation of PCs. Increasingly, retailers and Telcos play an important role in defining the PC experience. For many of our customers, their first hands-on Windows 8 experience will take place in one of these stores. Our investments with Windows 8 help partners expose their brand in new and interesting ways, instant-on experiences, and support new business models such as Telco provisioning.

OEMs	Retailers	Telcos
Value Prop Statement		
Windows 8 is the software platform of choice for the next generation of PCs, supporting new and innovative hardware form factors, enabling new differentiation and revenue opportunities and supporting an ongoing partnership to deliver quality to customers.	*With Windows 8, retailers can deliver the promise of PC power and flexibility, with the immediacy and consistent quality of consumer electronics devices, increasing PC sell-through and creating satisfied, loyal customers.*	*Windows 8 is engineered with the Telco business model in mind, from customer acquisition to network management to support, with clear differentiation and branding opportunities by increasing loyalty, delivering innovative services, and reducing subscriber churn.*
Designed for a Tailored Web Experience		
Build innovative PC experiences Touch-first shell with great applications	**Showcase new consumer scenarios** Touch-first shell with great applications	**The richness of the PC** Touch-first shell with great applications
Engineered for Tailored Web Development		
A world of PC experiences DX graphics platform, media controls for IE and web technology, app model for tailored applications	**A world of PC experiences** DX graphics platform, media controls for IE and web technology, app model for tailored applications	**Telco-oriented experiences** Device stage improvements, app model for tailored applications
Always Connected and Ready to Use		
PCs for a networked world Optimized for connected, roaming and syncing; reduced power consumption **Improved support and extensibility** Reduced support call volume	**Connected experiences** Optimized for connected, roaming and syncing; reduced power consumption **Improved support and extensibility** Reduced support call volume	**Same as retailer plus:** Provisioning, connection manager, work from home, back to my work PC, flexible telework, seamless network roaming with no overage or roaming cost surprises
Enhanced with Services		
Tailored connection with Microsoft Partner portal, customization, Windows Store, Windows Online, visibly Genuine, dynamic help and support	**Delivering consistent customer value** Windows Online, visibly Genuine, differentiation by "SIM," seamless customer acquisition	**Same as retailer**
Approaching Consumer Electronics Quality		
Reduce manufacturing time and cost Improved image creation, assessment, deployment and offline management **Long-lasting PC quality** Consistent performance over time, battery lasts all day, smart driver updates, Improved diagnostics, compatibility monitoring, searchable troubleshooters	**Optimized for always on** Windows turns on and off quickly, battery lasts all day **Long-lasting PC quality** Consistent performance over time, proactively performs regular maintenance tasks without any effort or disruption	**Optimized for always on** Windows turns on and off quickly, battery lasts all day **Long-lasting PC quality** Consistent performance over time, proactively performs regular maintenance tasks without any effort or disruption
Future Proofing the OS		
Supporting new H/W innovation SoC, NTFS++	**Supporting new H/W innovation** SoC	**Supporting new H/W innovation** SoC

IHV, ISV and Developer Partners. Windows is adopted so widely because of the diversity of choice and capabilities provided by an expansive, ever-changing ecosystem, where Windows has a central role in connecting PCs, devices and software programs to provide a tailored and differentiated experience for customers. This ecosystem of supported hardware and software is a critical factor in determining the successful launch and deployment of each new version of Windows. By ensuring we have clear monetization, product discovery and distribution options for partners, we gain strong support from the ecosystem to ensure that customers have a great experience using Windows with the devices and software they rely on every day. This experience can range from "it just works when I plug it in" to "it lights up a new feature of the new version of Windows." With Windows 8, advances in the device experience for IHVs, monetization and web API innovations for ISVs and so called "Rising Star" developers make our new operating system very attractive to ecosystem partners, who in turn will make the entire platform attractive for customers.

IHVs	ISVs	Rising Stars
Value Prop Statement		
Windows 8 enables new device experiences that make it easier for customers to connect, manage, and use devices with Windows and increases the adoption of devices that uniquely light up new features of Windows 8.	*Windows 8 provides the best platform for professional software firms to develop and monetize unique and tailored applications by using the best of the web and native technologies to enable constant connection to customers.*	*Windows 8 allows rising star and professional developers, using the best of the web and native technologies, to quickly write uniquely Windows applications with broad reach and easy monetization.*
Designed for a Tailored Web Experience		
A modern device experience Touch optimized interface, connect media to any DLNA-enabled device, easy to install and use devices after Windows setup, modern device access and sharing	**A modern application experience** Build great applications, search in the modern shell, settings and apps roam with customer, and the notifications platform further integrates experiences	**Same as ISV**
Engineered for Tailored Web Development		
A modern device development platform App model optimized for multi-touch, access to HW and device ecosystem through web or native technologies, direct access to camera presence, 3D games expose Natal interaction model	**A modern developer platform** Easy to build, deploy and monetize apps; lightweight to develop a rich, connected Windows app using web technologies; enhanced HTML rendering engine; state of the art developer tools	**Same as ISV**
Always Connected and Ready to Use		
Increase demand for devices Extend data protection with storage devices and services, support for modern sensors, USB3 and low-power Bluetooth profiles, easy wireless pairing	Easy to deliver connected applications	**Same as ISV**
Enhanced with Services		
Tailored connection with Microsoft Compatibility Center, partner portal	Improve discovery and monetization of apps with the Windows Store, developer portal, Windows Online	Monetize apps in the Windows Store, community-based discovery and support, developer portal, Windows Online
Approaching Consumer Electronics Quality		
Create and maintain high-quality drivers Easy to deploy and update images, system quality assessment tools	**Reduce developer friction** Dynamic compatibility mitigations, smart auto updating, app reputation checks	**Reduce developer friction** Smart auto updating, app reputation checks
Future Proofing the OS		
Modern development platform Developer client hypervisor, SoC	**Modern development platform** Developer client hypervisor, SoC	

TENET CHANGES FOR WINDOWS 8

Customer feedback on Windows 7 related to our tenet areas has been extremely positive. For that, the entire Windows organization rightly feels a strong sense of pride and accomplishment. Having set new expectations with customers, we need to strive to meet or exceed them. Our goals for Windows 8 establish a higher bar and our tenet investments for Windows 8 need to produce even better results than they did for Windows 7, while still ensuring that right amount of our team's energy can be focused on innovation and adding new customer value. We will continue to hold the line for Windows 8 on system requirements, which will be the same as Windows 7.

In preparing for Windows 8, we laid the foundation for managing our tenet work in our feature teams. In developing that foundation, we carefully studied feedback from our Windows 7 feature teams, evaluated our earlier guidance, consulted heavily with leaders across the organization, and retooled some engineering system components. For Windows 8, we aim to simplify the work for teams and make it possible to think holistically about tenet work inline and on the same cadence as feature work. Our system will support metrics tracking on a nearly daily basis for most tenets to ensure timely and meaningful telemetry on our tenet health. Additionally, roles and expectations for our shared teams, our Tenet Owners, our Tenet Champions and our feature teams have been established with the aim of delivering a clear set of improvements that customers will notice on day one. Collectively, we will do the work to get these right for Beta and especially at RTM and deliver everything we need for a great release. We will not rely on out-of-band kits or updates to finish the job.

 For Windows 8, we have chosen nine tenet areas. Each these are measurable, enforceable and an area that should be familiar. More details on the focus for each of the areas will be available as part of our coding milestone plans. The nine areas are:

World Ready. Windows 8 is efficiently localized and locally relevant for markets across the globe. We aspire to provide full feature parity for all supported markets: every feature should handle text and other data in a way that is appropriate for the local culture and easily extensible to all markets. OEMs and enterprise customers can expect Windows 8 to provide easy worldwide deployment and servicing.

Performance (includes Power). Faster and more efficient than Windows 7, right out of the box and over time, on all top scenarios, and on the same spec systems. Windows 8 offers improved energy efficiency for consumer and enterprise PCs to reduce costs, and deliver "all day" battery life on SoC-based systems. We achieve great base-level performance by tuning the system in accordance with our performance and benchmarking reports and by actively fixing performance bugs during the development cycle.

Reliability. Windows 8 is more stable and reliable at RTM than any previous Windows release. Features are designed so they don't crash or fail unexpectedly. Reliability feedback data from representative systems/users is leveraged throughout the release to identify and fix key issues contributing to user disruptions (crashes, hangs, resource leaks, reboots, unbootable systems), and to drive for a substantially higher bar in terms of reduced disruptions to exceed reliability of Windows 7 at RTM.

Compatibility. There are no adoption blockers relating to compatibility in migrating from Windows 7 to Windows 8. We ensure that all Windows 7 drivers work seamlessly and applications will continue

working. Deprecated or removed features and technologies are identified and made public as part of Beta 1.

User Experience. The user experience is elegant and harmonious across all areas, so it feels like one team designed it end-to-end. Customers clearly recognize the improved usability, usefulness, and desirability of Windows 8. As in Windows 7 we will spend focused time on not just the function but the elegance and polish of our user interfaces.

Developer Experience. Windows 8 reinvigorates the developer community through the updated operating system features as well as the tools, kits and documentation that showcase these features. Kits, sample code, documentation and tools are all part of the product and receive the same commitment and attention as do any other feature in the system. Kits are managed as part of the regular Windows 8 milestones and complete one milestone ahead to ensure high-quality use by partners.

Manageability. Windows 8 manageability is the most consistent and extensive ever. IT Pros find Windows 8 has a lower total cost of ownership because of the reduced complexity associated with our having designed, developed and tested features with manageability in mind.

Security. Windows 8 is the most secure Windows ever shipped. We continue to reduce the vulnerability of Windows to security attacks and to develop security features that are simple to use, manageable and have clear user benefit. Security, as with all tenets, is engineered and validated in real time during our Windows 8 development cycle. When customers are presented with security decisions, they can make choices with confidence.

Compliance. Windows 8 meets or exceeds all legal, regulatory and Microsoft mandatory policy requirements. The requirements are understood early in the development cycle and incorporated into our designs, schedules, reviews, code and tests.

ENGINEERING CHANGES FOR WINDOWS 8

In Windows 7, we made major improvements in our engineering system methods and tools. We adopted a new, unified milestone schedule with frequent stabilization periods, increased our investment in specs, development designs and test plans, flattened our code branching structure to increase code velocity, began consolidating our test execution systems, distributed decision making authority out to the feature teams and worked from a shared playbook of best practices and a common set of metrics and dashboards.

In getting ready for MQ, v-teams from across Windows focused on learning from our Windows 7 experience and identifying key pain points. By addressing these pain points and delivering an improved engineering system prior to the start of coding, we have put ourselves in a great position to build an outstanding Windows 8. Working across the team we are making (and in many areas have already completed) the following major improvements to our Windows 8 engineering system.

Simplified Engineer Workflow and Insight. We've simplified common SDE and SDET workflows into one integrated engineering desktop, the WinIDE. This development environment and its complementary services simplifies many steps in development and testing, bringing the power of Visual Studio editing

together with Windows scale source management, fast incremental builds, an integrated test authoring framework, in-line code coverage views, standardized code review workflows and a pre-check-in validation system. Within the WinIDE, we've made it much simpler to navigate the code base with a fast, semantically aware search service, reSearch. WinIDE also supports in-line static code analysis and built in baselining, in addition to static analysis filters that catch new classes of buffer overruns and other vulnerabilities and that identifies common concurrency bugs due to incorrectly held locks.

Simplifying the Debugging Experience. Debugging, particularly for optimized code paths or legacy-free netbooks, was too painful in Windows 7. For Windows 8, we've made this easier by adding support for remote debugging over IP/Ethernet and, working with the VC compiler team, improved the debugging of optimized code by showing the correct locations and values for variables even when moved by the compiler/optimizer. This improved debugging experience, including kernel mode debugging, is integrated right into the WinIDE. We've raised the quality, reliability and parity of our CHK builds to ensure better consumption of these alongside retail builds in our engineering teams.

Fast, Reliable Incremental Builds. Through the addition of build-time dependency tracing and improved build telemetry, we've made major improvements in our build system. Engineers can now quickly and reliably generate incremental builds at their desktop, only compiling the code that needs to be rebuilt based upon their changes and dependencies. Using this map of dependencies and telemetry data, we have virtually eliminated timing-based build breaks and greatly improved build system reliability. Our resulting ability to more efficiently distribute the build workload across more cores and threads has improved full build times by 15 to 17%. We've streamlined the staging and media creation process by using virtual machines and anticipate throughput gains when the new system is fully deployed.

Faster, Simplified Bug, Feature and Work Tracking. Poor system performance, unnecessary complexity, duplicate systems and the annoying need to do double data entry were all pain points in our Windows 7 bug, feature and task tracking systems. For Windows 8, we've eliminated overlapping systems, integrated our specification and feature tracking workflows to eliminate double data entry, simplified and improved our Excel-based task tracking system and made numerous performance and usability enhancements in Product Studio. We anticipate all of these improvements will add up to thousands of hours of savings and greatly decreased levels of engineer frustration.

Centralized Test Execution System and Labs. We've made big investments to continue the ongoing consolidation, enhancement and throughput of our central test execution system and labs. In Windows 8, the client teams will be consolidated onto one integrated test automation system, Atlas, based on a much faster, more stable WTT backend. Complementing that investment, we've moved all our test execution and triage resources into one consolidated team, freeing feature teams to focus on the quality of the code base and the test content they create. We've also agreed to common and prescriptive processes around test job and test content quality, including consistent guidelines for authoring and classifying all of our test content that readily maps to our schedules and workflow.

Consolidated Report Repository with Common Pivots and Enhanced Excel Support. For Windows 8, all our team-wide metrics and reports will be available before M1 starts and will be accessible from one consolidated site, regardless of data source or reporting tool. Everyone can quickly drill-down to their feature area and feature team view of the data. New bug, feature and task reports are now much easier to create in Excel using cubes that support the standard dimensions (feature teams and sub-teams, components, milestone dates) that we use across the team. And our reporting solutions and dashboards have been consolidated to ensure we aren't undermining our critical business systems.

SCHEDULE

With every release of Windows we have a deliberate customer and partner engagement framework. Our Windows 8 approach builds on Windows 7, with dedicated customer listening systems and partner forums that balance our need for input with partner desire for information. We couple this with a specific messaging framework and timeline so that our messages reach the right partners, influentials and customers at the appropriate time.

This structured approach benefits all parties. We ensure that we're meeting with the right folks within the ecosystem at the time in which we can benefit from their feedback. Our partners can predict when they will get information and can trust its integrity when they get it from our channels. We help our go-to-market efforts have the greatest impact, focused on landing our message with customers instead of time and energy wasted on eliminating confusion and minimizing disruption from mixed or unsponsored information. Having a rigorous disclosure plan and dedicated roles—and just those roles—responsible for execution is crucial, and the most helpful thing the team can do in this regard is to respect these plans and roles. Creating additional disclosure channels creates more work for us and for our partners and limits the impact of the information when we do share it. Our plans around unveiling the product specifics take into account when we can achieve maximum customer, partner and competitive impact.

Throughout development we will take precautions to keep the builds secure and new innovations out of sight in the product until we are ready to reveal them as part of our overall disclosure plan, driven by our marketing and ecosystem teams. For each milestone, we will deliver against our exit criteria for the milestone, mindful of our stated plans for feedback and disclosure. M3 is code and API complete for the product and for any downlevel (e.g. windows 7) platform update. After M3 escrow, our developer preview at the PDC will be our first public disclosure. Beta is feature complete and reliable enough to generate the telemetry we need to assess readiness to ship. Our schedule includes the right partner-focused deliverables and certification programs, so partners deliver high-quality systems, devices and applications in a coordinated, global launch. As a result of this, Windows 8 will be used on a daily basis by millions of customers, generating excitement up to RC and through to RTM.

The proposed schedule for Windows 8 is listed below. It reflects a three-milestone release and is coincident with the next release of Windows Server. Internet Explorer 10 and Live Wave 5 will target Windows 8 and be complete and available by Windows 8 release.

Milestone	Start	End	Weeks
Vision doc complete	3/24	3/24	n/a
M1 Coding starts	6/7	7/23	7 (inc holiday week)
M1 Integration	7/26	9/24	9
M2 Coding starts	9/27	11/5	6
M2 Integration	11/8	1/28/2011	12 (inc 3 holiday wks)
M3 Coding starts	1/31/2011	3/11	6
M3 Integration	3/14	5/27	11
Beta 1	5/30	9/16	15
RC	8/29	12/16	16 (inc 1 holiday wk)
RTM	11/28	4/4	19 (inc 2 holiday wks)