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MICROSOFT CORPORATION

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COMMITTEE ON HOUSE ADMINISTRATION SUBCOMMITTEE ON OVERSIGHT  
UNITED STATES HOUSE OF REPRESENTATIVES

HEARING ON MODERNIZING INFORMATION DELIVERY IN THE HOUSE

“THE FUTURE OF PRODUCTIVITY”

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**Mr. Chairman, Representative Lofgren, and members of the Subcommittee,** my name is Kent Cunningham, and I am the Chief Technology Officer of Microsoft's Federal Civilian and Healthcare group. I appreciate the opportunity to share Microsoft's views on how the House can improve productivity and efficiency, and modernize information consumption and delivery, throughout the legislative process. And we applaud the Subcommittee's leadership in holding today's hearing.

For over thirty years, Microsoft has helped individuals and organizations work more efficiently, collaborate more effectively, and achieve results. In particular, our work with public sector entities at all levels of government, all around the world, has enabled us to build a deep understanding of government security, privacy, and compliance needs.

Although the House is in many ways similar to other large enterprises, it is also special in that it is an inherently collaborative body. Documents get written, schedules are coordinated, disagreements get resolved, and legislation moves from the drafting phase all the way to enrollment because people work together across office, committee, and party boundaries. Another unique aspect of the House is the transient nature of many collaborative relationships: whereas private-sector employees have an aligned interest in helping their organization execute its overall corporate strategy, in the House of Representatives two offices might cooperate on a particular issue in the morning and find themselves at cross-purposes on another issue in the afternoon. The House's operations can be improved and made more efficient by using technology to promote situational trust relationships and flexible, context-specific collaboration.

Members and staff are already adopting and embracing a broad range of exciting new devices and applications for collaboration and productivity. However, most of these devices and applications were designed primarily to meet consumers' day-to-day demands, not the special

needs of an government institution. Use of consumer tools within the House can expose the organization to certain risks and inefficiencies, which could ultimately result in more to manage and even more silos and barriers to House-wide collaboration. Microsoft has decades of experience in helping organizations implement systems that accommodate users' desire for choice, flexibility, and mobility, and still satisfy the enterprise's need for security, integrity, and reliability. Time and time again, our experience has taught us that collaborative tools work best if deployed within a unified information technology framework that permits secure, reliable collaboration across multiple devices and applications.

In the first section of my testimony, I will discuss how existing technological solutions can be used to unify the disparate systems by which House employees communicate; simplify the process of creating, editing, and sharing digital information; efficiently locate the data that people need to be productive; and empower House employees to work effectively anywhere, at any time. The second section will outline some of the considerations we believe the House should weigh as it modernizes systems and facilitates collaboration and content delivery. And finally, I will recommend several steps the House can take today to immediately realize some of the business process efficiencies enjoyed by our private sector customers.

## **I. The Benefits of a More Collaborative, Automated Environment**

I would like to begin by highlighting four ways in which enterprise-grade technology tools can be used to strengthen collaboration and improve productivity in the House. First, unified communications technologies can integrate voice communications with email, data, and video systems, untethering Members and staff from their phone wall jacks and liberating them to communicate over a wide range of devices. Second, modern technology tools make it easier than ever to create, edit, and share digital information, while ensuring that only intended recipients gain access to confidential data. Third, better search capabilities customized around

the House's unique organization and structure can contribute to smarter and faster decision-making. Finally, technology can maximize productivity by enabling people to work effectively regardless of whether they are in the office, on the House floor, or on the go.

Although many Members and staff are already taking advantage of a range of collaborative technologies, they are doing so on an *ad hoc* basis, using a variety of tools and networks that do not always work together. The House could enhance cooperation and improve efficiency by adopting integrated enterprise productivity solutions that would free users to decide how, where, and with whom they want to collaborate.

#### **A. Unifying Communications**

The phones that sit on congressional desks have remained largely unchanged for many years. The networks over which they communicate are more sophisticated, and the units themselves have more features, but essentially the phones serve only one purpose: making and receiving voice calls. Reaching out in real time means calling the other person's number and hoping that he or she happens to be available. Collaborating on projects also consumes significant time from multiple resources. Simply getting together for a meeting often requires coordinating schedules, arranging travel, printing agendas, and distributing hard copy briefing materials in advance.

Today, technology enables colleagues to stay in continuous contact, across a variety of media. Communications can be managed from a single "universal inbox" that seamlessly brings together e-mail, voicemail, instant messaging ("IM"), VoIP, and web-, audio-, and videoconferencing. Better yet, this technology can be rolled out with minimal disruption to an organization's existing infrastructure.

Presence information (e.g., an indicator of whether a person is online, away from their desk, busy, in a meeting, on a call, or does not want to be disturbed) can also be integrated into

the collaboration environment, allowing other users to instantly see who is available and how best to reach them. Presence information can be further enhanced to make collaboration and communications even more effective and efficient. For instance, calendar information can be integrated into the system so that the user's status is automatically set to "in a meeting" when the user has a scheduled meeting. Presence information is the foundation for managing all different levels of communication, because it enables people to communicate in the way that is most suitable for the task at hand. For example, a House staffer who sees that a colleague is online can send an IM to initiate a conversation. Depending on the context and need, the parties can complete their communication via IM, escalate the conversation to a phone call or videoconference, invite others to join the conversation, or launch a collaborative online session that allows them to easily share desktop content in real time.

Unified communications are already transforming productivity at geographically dispersed organizations such as the U.S. Department of Agriculture ("USDA"), whose employees are located in 5,000 offices across the country and 100 countries around the globe.<sup>1</sup> According to the USDA, the ability to see colleagues' availability and choose whether to communicate via chat, voice, or mail allows its 120,000 employees to collaborate more effectively and use taxpayer dollars more efficiently.

Unified communications can even encompass communications with individuals outside the organization's network. Microsoft's enterprise tools provide a unique communication capability that we call federation. Through federation, it is now possible to communicate with IM users across a variety of third-party platforms, including AOL IM, Google Talk, Jabber,

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<sup>1</sup> See *USDA Moves 120,000 Users to Microsoft's Cloud*, MICROSOFT (Dec. 8, 2010), <http://www.microsoft.com/presspass/features/2010/dec10/12-08usda.mspx>.

Windows Live Messenger, and Yahoo! Messenger. At the same time, conversations can be selectively filtered to ensure that confidential information is not transmitted to platforms that lack the necessary security. Federation has already helped businesses break down technology silos and achieve better collaboration with partners, suppliers, and customers. The House could similarly use federation to facilitate communications with other government institutions, stakeholders, and constituents, while maintaining the privacy and confidentiality required for sensitive information.

In addition, there are a variety of technological solutions that can make meetings more flexible and productive. Adopting integrated scheduling tools would make it easy for the House to prioritize and move meetings around in order to optimize scheduling. Agendas and related content can now be sent to the meeting space electronically, eliminating the need to hand out paper documents. Technology has made it easier than ever to share documents once the meeting has started, even when the participants are not in the same room: besides sharing desktop files, people can use virtual whiteboards to draw diagrams and explain things to one another. And meetings can be transcribed, archived, and indexed for search, so that anyone who missed a meeting can later replay it and stay in the loop.

#### **B. Making It Easier to Create, Edit, and Share Digital Information**

Given how far technology has come in recent years, it is easy to forget how much time and effort it once took to create documents, memos, and reports. Documents used to be typed, and mistakes were commonly corrected with white-out. Making one change could sometimes require retyping the whole document. Authoring documents collaboratively was a time- and paper-intensive process that could stretch out across weeks or months as paper copies of each revision were shuffled manually from office to office.

The widespread use of PCs and the development of standards such as XML have simplified things greatly, but technology exists today that could streamline the process even further. In today's highly connected work environment, for example, documents created by multiple authors and stakeholders are becoming the rule rather than the exception. Traditional collaboration required users to pass attachments around, then struggle to reconcile different versions, manually merge and coordinate changes, and track down who had done what. Thanks to modern co-authoring tools, multiple users now can work productively on the same document at the same time. For example, several authors who are brainstorming together can quickly capture ideas in a document that is visible to, and can be edited by, everyone involved. Or several authors can work on a composite slide show together by adding slides to separate parts of the presentation, instead of working in isolation and trying to merge their changes later. Cross-platform synchronization ensures that everyone is working off of the latest version of the draft briefing paper, Committee mark-up memo, letter to a constituent, or press release – regardless of whether they are accessing the document on their PC, on their Mac, via their mobile devices, or in the cloud. Version control tools make it easy to identify who made what changes, when the changes were made, and who has reviewed and approved the changes. Staff can also stay informed about ongoing developments in the collaborative workflow, with email alerts that notify them when new files have been created or existing documents edited.

The newsroom application being used by the Associated Press (“AP”) illustrates the benefits that can be achieved through this kind of real-time collaboration.<sup>2</sup> The pressures of the 24-hour global news cycle mean that news organizations must produce stories faster than ever

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<sup>2</sup> See *Associated Press: News Network Streamlines Editorial Process with Flexible, Efficient Newsroom System*, MICROSOFT (May 12, 2010), [http://www.microsoft.com/casestudies/Case\\_Study\\_Detail.aspx?CaseStudyID=4000006933](http://www.microsoft.com/casestudies/Case_Study_Detail.aspx?CaseStudyID=4000006933).

before, using richer multimedia content formats, and at lower cost. The AP's newsroom application, which is based on Microsoft SharePoint Server 2010 and Microsoft Word 2010, is helping the AP reach these goals. The application allows journalists working collaboratively on stories to instantly determine which of multiple versions of a story is the most current, reducing confusion and increasing productivity. As a story is edited and refined, editors can instantly see the entire history of a particular story. And accompanying material generated during the story development process can be gathered together quickly, making it easy to manage a group of related pieces as a single entity. One can easily envision the benefits of version control tools in the House, where Members, staff, and other stakeholders are in a continuous and highly collaborative process of shaping, refining, and integrating different parts of legislative text across multiple authors and offices.

The city of Poway, California is also taking advantage of Microsoft's enterprise tools to improve collaboration and deliver results faster.<sup>3</sup> Employees in Poway's Finance Department use the city's intranet site to help develop the city's annual budget. Spreadsheets and other budget documents are posted on the department's team site. Individuals can then review, edit, and update these documents without creating multiple versions or sending the files repeatedly through email, which has caused version control and document fidelity problems in the past. In the first year after Poway's Finance Department began sharing and editing documents via the team site, the budget development process proceeded significantly faster than before.

Finally, it is worth noting that the transition to new technology does not necessarily have to be a complicated process requiring extensive training for new users. Familiar, intuitive

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<sup>3</sup> See *City of Poway: City Rebuilds Intranet, Speeds Content Updates, Reduces IT Maintenance by 50 Percent*, MICROSOFT (May 3, 2011), <http://www.microsoft.com/casestudies/Microsoft-Sharepoint-Server-2010/City-of-Poway/City-Rebuilds-Intranet-Speeds-Content-Updates-Reduces-IT-Maintenance-by-50-Percent/4000009857>.

programs like Word already support multiple file formats, including the Open XML and PDF formats that the House uses – meaning that users can do everything they need to do within a single program interface, even if they need to interact with different systems used by other organizations. One of the reasons the AP built its newsroom application around Word 2010 was so that journalists could work in a word processing environment they are comfortable with. This allows the AP’s journalists to spend more time reporting the news and less time grappling with unfamiliar technology. And because Word 2010 supports the standards-based Open XML file format, it is easy to connect the AP’s editorial application with its proprietary content-processing and publishing systems.

### **C. Simplifying Information Retrieval**

Employees spend too much of their workday simply looking for the information they need to do their jobs. The Congressional Research Service is a great resource when members and staff need timely, reliable research about an issue, but it is ill-suited to the task of searching information particular to a congressional office, or that was created by several offices working together on a project outside the formal legislative process workflow. The modern reality of large enterprises like the House of Representatives is that data has become scattered across network shares, email systems, hard drives, websites, and elsewhere. Only the most disciplined offices have structured file storage systems to ensure that their staff know which sources to search, and even the staff in these offices probably spend too much time looking for – rather than finding – the information they need.

Many of Microsoft’s enterprise customers in both the public and private sector have deployed enhanced search capabilities to help their employees quickly and easily find relevant information, which leads to faster and smarter decision-making. Today’s sophisticated search tools allow users to refine their search results based on the type of content (Web page,

spreadsheet, presentation, PDF, and so on), location, author, last modified date, and metadata tags. Many enterprises are also tailoring users' search experience based on their role within the organization. Instead of being shaped by the factors that influence consumer search portals, such as the user's recent purchases or advertisers' keyword selections, enterprise search results can be personalized to reflect individuals' particular job responsibilities, preferred file formats, which search results their colleagues found valuable, and a host of other customizable elements – all designed to help individuals navigate more quickly to the right content in the context of the work they do. The House could use these advanced search technologies to create specific search criteria and tools based on the House's unique taxonomy, organization, and contextual needs.

Technology also makes it possible to index and search across vastly disparate information sources. For instance, Microsoft recently helped the United Kingdom's National Institute for Health and Clinical Excellence ("NICE") index various databases that were using different data structures, metadata tagging schemes, and organizational taxonomies.<sup>4</sup> NICE's Internet portal now offers health professionals a single access point for searching more than 250 sources of evidence-based medical guidance, with filters to refine results according to areas of interest, document type, and other categories.

Thanks to breakthroughs in speech recognition technology by Microsoft Research, search can be extended to audio and video files as well. For example, the states of Washington and Montana are using Microsoft technology to provide citizens with the ability to query decades of

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<sup>4</sup> See *National Institute for Health and Clinical Excellence: Health Agency Simplifies Information Access for Health Professionals with Web Portal*, MICROSOFT (Jan. 12, 2011), <http://www.microsoft.com/casestudies/Microsoft-Sharepoint-Server-2010/National-Institute-for-Health-and-Clinical-Excellence/Health-Agency-Simplifies-Information-Access-for-Health-Professionals-with-Web-Portal/4000008943>.

digitally archived legislative proceedings.<sup>5</sup> Users can enter search terms and then listen to the exact moments in the proceedings when the search terms were spoken. Considering how much House business – both floor and committee proceedings – relies on verbal communication, the ability to search this content could be an invaluable productivity and reference tool.

#### **D. Working from Anywhere**

Once upon a time, “going to work” meant physically traveling to an office. The office was often the only place where employees could access necessary tools such as typewriters or photocopiers. Information required to get the job done was stored in desk drawers or filing cabinets. Employees needed to be at their desks in case someone wanted to reach them by phone.

Today, we take for granted the way that laptops and mobile devices have liberated us from our offices. We can now work productively in the conference room down the hall, in the coffee shop down the street, at home, standing on the people-mover at the airport, or even in the air as we fly across the country. Tablets can now be used to look up a fact or retrieve a document in the middle of a mark-up or floor debate. Online collaboration tools make files, spreadsheets, presentations, and other resources available wherever and whenever they are needed. Security protections for online workgroup sites and rights management technology can help guarantee that only authorized users have access to sensitive or confidential information.

Even in circumstances where it is not possible to connect to the Internet, technology can ensure that users experience a seamless transition between their online and offline working environments. Changes made in the offline version of a document can be saved and

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<sup>5</sup> See *Audio Records*, WASHINGTON STATE ARCHIVES - DIGITAL ARCHIVES, <http://www.digitalarchives.wa.gov/Collections#RSID:25> (last visited June 11, 2011); *Audio*, MONT. HISTORICAL SOC'Y, <http://www.montanadigitalarchives.com/Collections.aspx#RSID:25> (last visited June 11, 2011).

automatically implemented in the online version once the user reconnects. If other people are also using that document, the updated file can be automatically synchronized across everyone's computers to ensure that everyone has access to the latest version of the document.

Users deserve to have a similarly seamless experience when using multiple devices to access their information or edit their documents. "Working from anywhere" now also means that a person can, for example, create a document on his or her computer, save it to an online workgroup, invite others to comment, use his or her mobile device during a break between meetings to review edits, then return to his or her office to implement the suggestions and finalize the document. People expect that their documents will be able to "round trip" from their PC or Mac to the browser to the phone and back, without losing any data, formatting, or edits.

## **II. The Challenges Associated with the Move Toward a More Collaborative Environment**

Although collaboration tools can empower employees to connect and work across organizational boundaries, there are technical considerations that should be kept in mind as the House moves forward with its modernization efforts. Microsoft's experience in the enterprise space has taught us that security, document fidelity, and interoperability all present challenges when organizations transition to a more collaborative environment. These challenges can be addressed by implementing an organization-wide platform to securely manage collaboration and communication across multiple devices, locations, and users.

### **A. Security**

Today's tech-savvy consumers are increasingly bringing their personal technology to the office, seeking new ways to work that align with how they use social, mobile, and digital tools in their personal lives. In the House, Members and staff are already using text messaging, chat services, cloud storage services, and instant messaging to communicate with colleagues and

friends. Although the House should encourage the use of tools that promote productivity, security must be maintained as well – a task which is significantly more challenging when dealing with consumer-grade tools that were not built with security in mind. For example, hackers have been known to target the personal web-based email accounts of U.S. officials in the hopes of obtaining sensitive information.<sup>6</sup> These personal accounts are often more vulnerable because they do not have the same level of security controls that government institutions require for confidentiality and privacy purposes. Similarly, many consumer IM platforms and text messages sent from consumer devices lack the encryption and recipient authentication requirements that are normally enforced by government agencies to ensure that information remains protected and secure.

This Subcommittee could help modernize information management in the House by developing a single, interoperable platform that accommodates users' desire to choose their own devices and applications and that also supports institutional and legal requirements for data security and retention. There are already many existing tools that could help the House manage security across a variety of areas, including:

- Content Security. Rights can be configured so that only certain individuals are able to open, modify, copy, print, forward, or take other specific actions with a file. Filtering tools can be applied to outgoing communications, allowing individual offices to determine whether a particular piece of content is appropriate for public distribution before it leaves the boundaries of the House's network.
- Network Access Security. In many instances, organizations rely on networks to provide security – an approach that may be acceptable when the user is working inside the organization's secure borders, but that may present significantly greater concerns when the same user takes his or her laptop to the local coffee shop and begins accessing content over the coffee shop's unsecured network. There are existing tools that can analyze the

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<sup>6</sup> See, e.g., Devlin Barrett & Siobhan Gorman, *Gmail Hack Targeted White House*, WALL ST. J., June 3, 2011, <http://online.wsj.com/article/SB10001424052702304563104576361863723857124.html>.

security of a user's network and determine whether it is safe to transmit information over that particular network at that particular time.

- Device Security. Organizations are increasingly allowing employees to use their personal devices on organizational networks. If consumer devices are going to be used to conduct official business, however, those devices need to support enterprise-level controls for authentication, security, and access. For example, several agencies are using technological solutions that encrypt and protect data when it is downloaded onto employees' personal portable devices. The House could employ similar tools to safeguard against inadvertent data losses.
- User Access Security. Existing authentication tools can help ensure that data is accessed only by authorized users. The House could use these tools to confirm the identity of a text message recipient, for example, or prevent unauthorized individuals from accessing online workspaces. And because security measures such as two-factor authentication can often be deployed in combination with users' existing personal devices, the House can take steps to ensure security while still accommodating users' desire for flexibility and choice.

## **B. Document Fidelity**

As discussed above, people are now using a variety of platforms to access information and edit files, enabling them to be productive no matter where they happen to be or what device they prefer to use. As files move from the cloud to PC to mobile and back to the cloud, however, document fidelity must be maintained. Otherwise, data embedded within the file is at risk of being lost during the conversion process. Sometimes this data loss results in only minor changes – a lost font, some missing metadata tags, or a few bullet points that are no longer formatted correctly. But sometimes this data loss can have far more significant consequences. For example, the loss of an “embargoed” or “confidential” watermark can result in the premature release of information, or the leakage of data that was never intended for public consumption at all. In addition, there is no way to predict when data will be lost or which of the document's features will no longer work properly. In the context of the House, where even small deviations in an official document can have a major impact, document fidelity should not be taken lightly.

One way to protect document fidelity is by using platforms that support standards such as Open XML throughout every stage of the workflow. Because these platforms ensure that files are created, edited, stored, and archived in standard formats, documents can be repeatedly opened and closed across multiple devices without losing any of the features or data that are integral to the document. Being able to simply read and write standard document formats is not enough. If the documents are not also stored in these formats, that means they are deconstructed and reconstructed, a process that puts document fidelity at risk. Microsoft helped create the Open XML standard, and we remain an industry leader in delivering technological, standards-based solutions that safeguard document fidelity.

### **C. Interoperability**

Most people today work in mixed computing environments, where legacy data is stored in a variety of formats and technology solutions are provided by a variety of companies, products, and applications. Using heterogeneous tools often results in technology silos, with each system having separate hardware, maintenance, external implementation, and internal support requirements. In order to obtain full value from their information technology investments, organizations need to be able to connect and share data among different applications, devices, platforms, and components. Unless interoperability considerations are built into a system from the start, however, the cost of achieving interoperability can often exceed the cost of acquiring the system in the first place.

Organizations can leverage their legacy data and existing assets by using standards and focusing on interoperability. Maintaining a high level of interoperability is imperative as the House seeks to reduce the costs associated with managing information technology assets, and standards are one way of achieving this goal. Because standards are designed to be implemented by multiple applications on multiple platforms, it is easy to transfer data between different

devices and applications that conform to standards. Standards also enable the efficient extraction and migration of data, making it easier for organizations to switch to a different service or provider that offers better value. Finally, standards can be dynamically updated to reflect the rapid pace of technological change, ensuring that data and systems remain relevant in the future.

In short, interoperable, standards-based platforms make it possible to provide an integrated, managed computing environment that supports institutional requirements for security and reliability while accommodating users' desire to choose the productivity tools that work best for them.

### **III. What Can the House Do Today?**

Because the House has already made significant infrastructural investments, many of the technological advances described in my testimony are readily attainable. By implementing a technology called Active Directory, the House has already laid the foundation for a modern, collaborative, and information-driven work environment. This is the most important step our customers can take to prepare to leverage the power of modern productivity, collaboration, and relationship management tools, and the House has already taken it.

In the next eighteen months, the House could implement the following measures to further promote collaboration and improve efficiency:

- Deploy a web-enabled document collaboration platform to facilitate co-authoring of legislation, reports, and other documents. This same platform could also automate workflow capability to consistently manage common processes such as approvals and notifications of document changes.
- Empower individual offices to establish *ad hoc* online workgroups that transcend office, party, and committee boundaries. For example, members of a state delegation could easily work together and share documents regarding a particular issue that affects their state – even if they are members of different parties, sit on different committees, and are not collaborating on other, unrelated issues.
- Publish the House Directory in an easily accessed, always up-to-date electronic format that makes it easy to find out which offices and which individuals within a given office

are working on a particular issue. Such a system could synchronize the House Directory (including leadership, personal, committee, administrative and even caucus offices) in whole or part to mobile devices.

- Enable presence features, so that people know who is available for a conversation and how best to reach them.
- Federate with outside agencies and institutions so that individuals within the House can communicate with outside experts and stakeholders on an as-needed basis.

#### **IV. Conclusion**

Again, thank you for inviting Microsoft to share our recommendations with you. Based on our extensive experience in helping enterprises and government institutions develop efficient, digital workplaces, we believe that the House is well positioned to adopt a number of collaborative technologies that could improve productivity, automate workflows, and reduce paper – all while supporting the House’s need for secure, reliable, and interoperable technology solutions.

We commend the Subcommittee for holding this hearing today, and we look forward to working with you as the Subcommittee continues with its initiative to modernize information delivery in the House.