

Chief Administrative Officer
U.S. House of Representatives
Washington, DC 20515-6860

October 9, 2020

The Honorable Zoe Lofgren
Chairperson
Committee on House Administration
Washington, D.C. 20515

The Honorable Rodney Davis
Ranking Member
Committee on House Administration
Washington, D.C. 20515

Dear Chairperson Lofgren and Ranking Member Davis:

House Resolution 756 includes several recommendations related to the acquisition and use of information technology by Members of the House and the broader House community. Sections 301, 302, 303, 304, 305, and 306 either task the Chief Administrative Officer (CAO) with producing specific reports or make recommendations related to technologies overseen by the CAO.

Because each of these recommendations and report requirements are interrelated, I have elected to respond to them *en masse*. This letter, and subsequent addendums, respond to the requirements outlined in sections 301, 302, 303, 304, 305, and 306 of House Resolution 756 (H.Res. 756) and provides additional recommendations related to the use of technology in the House.

As you are aware, cybersecurity threats, constitutional Speech or Debate protections, House rules, appropriations law, and the decentralized nature of the House all make rapid technology adoption difficult. Despite these challenges, the House has made significant progress over the past several years preparing for technology modernization. Much of this progress was first invisible to Members because it required the institution to undertake several foundational improvements to how it adopts and manages technology.

These foundational improvements include:

1. The restructuring and rebuilding of House Information Resources (HIR) to prepare the organization to better serve the House. This includes significant and lasting improvements in technology management that, after 21 years of deficiencies, have finally been given a clean bill of health by independent auditors.
2. The migration of the House's data centers off campus to geographically dispersed, Tier 3 commercial data centers.
3. The expansion of network points of presence throughout the continental United States to improve connectivity for district offices to both cloud services and to the House network in Washington, D.C.
4. The preparation of our infrastructure, cybersecurity programs, and policies for interoperability with external cloud services. This includes:

- a. Focused work with the House General Counsel to ensure constitutional Speech or Debate protections continue to operate when Member data is stored outside the House;
 - b. Development and implementation of the House risk management framework based on standards and best practices issued by the National Institute of Technology;
 - c. The adoption of a House cloud strategy and policy related to the storage of House data in the cloud.
5. The significant expansion of House cybersecurity programs and capabilities. This expansion includes much better integration with the Executive branch, industry, and other national legislatures. The House participates in the annual CyberFlag exercise sponsored by U.S. Cyber Command where House cyber professionals hone their skills. We have developed deep partnerships with the National Laboratories that have helped improve our capabilities and close specific gaps in our program. We have learned from other national parliaments about their experience protecting elected officials in their country from some of the same adversaries the House faces. These partnerships allow the House to measure the quality of our program against some of the best in the world and provide a deep well of experience on how to continually improve the House program.

This foundational work, having occurred over multiple Congresses, would not have been possible without the support of the Committee on House Administration, Legislative Branch Appropriations, bi-partisan House Leadership, House General Counsel, and the other House Officers. Because of that work, today most Members' data is not hosted on servers physically controlled by the House – something inconceivable only a few short years ago.

Members are beginning to see the benefits as more technology tools become available. These include:

- The authorization of over 70 cloud services - including numerous video conferencing, collaboration, communication, and constituent engagement tools.
- The adoption of modern, cloud-based phone systems for district offices.
- The migration of all House offices to Office 365 – a cloud-based service with a broad suite of messaging, document management, collaboration, and remote access capabilities.

Because the House now has a wide array of cloud-based collaboration tools, Members were well positioned to continue to fulfill their Constitutional duties during the COVID-19 pandemic. Every day, thousands of House staff work remotely supporting their Member and the constituents they represent. The data on this is impressive:

- The House averages nearly 6000 remote users daily working securely and safely – often from home.
- Thousands of virtual teams created to continue to draft legislation, prepare for hearings, conduct oversight, and respond to constituents.
- Over 13 million chat messages exchanged between Members and staff.
- Thousands of daily video conferences among Members, staff, and constituents – nearly 320,000 such meetings since March.
- Millions of documents created and collaborated on by virtual teams.
- Almost 500 virtual Committee proceedings attended by remote Members and witnesses and viewed live by millions of Americans.

Despite this progress, the recommendations outlined in H.Res. 756 indicate Members are dissatisfied with the pace of modernization and the technology options available to support their offices. While I believe the House has never been better positioned to modernize, Member dissatisfaction is something I cannot ignore and shapes the recommendations contained within this response.

As you know, Catherine Szpindor, the House CIO and head of HIR recently announced her retirement. It was under Ms. Szpindor's leadership that the foundation and progress outlined above was made. The House is at an inflection point, and the guidance and direction we provide to the next House CIO is essential toward maintaining this progress. Given the unprecedented response required by COVID-19, the CAO was unable to contract for a formal study of HIR as contemplated by Section 301 of H.Res. 756. Nonetheless, my management team conducted an analysis of HIR and identified five broad areas that the next CIO must focus on.

1. Build on the House's Cybersecurity Momentum

Last year CAO cybersecurity teams blocked an estimated 19 billion unauthorized scans, probes and connections, contained approximately 300 million questionable emails, including spam, to thwart phishing attacks from reaching intended targets, and blocked more than 83,000 malicious URLs. The House has worked hard over the past several years to improve the cybersecurity posture of the House, build relationships with Executive and Legislative Branch cyber experts, and prepare the House to securely interoperate in the cloud. We know our adversaries never rest and neither can we.

The next CIO must continue this momentum, with a specific emphasis on (1) automating reporting processes to improve utilization of cyber resources to more efficiently and effectively respond to cyber events as they happen in real time and (2) improving cybersecurity training programs and policy compliance. The recommendations contained in Section 204 of H.Res. 756 requiring annual cybersecurity training for Members provides much needed support for this continued momentum.

2. Change the Perception of HIR by driving Technology Innovation in the House

Because of their role enforcing House policies, offices perceive HIR as the organization that tells them "No." HIR must aggressively change this perception and promote their positive role in technology innovation. This area of focus aligns with the following recommendations in H.Res. 756.

- Section 302 – Providing Technologies to Improve Constituent Engagement
- Section 303 – Streamlining Approval Process for Outside Technology Vendors
- Section 304 – Enabling Early Adoption of New Technologies and Application by Offices

The next CIO must focus on innovation and provide an environment where Members can safely and successfully test and adopt emerging technologies. I make substantive recommendations related to Sections 303 and 304 in this response that begin to outline how this might be achieved.

3. Renew HIR's Focus on Member Offices

HIR must become more operationally and culturally closer to the Member offices. HIR provides many excellent enterprise services but does not have a function dedicated to engaging with Member offices and delivering them technical solutions that support the typical business challenges faced by a 20 staff Member office. These business challenges include constituent engagement, Member scheduling, collaboration between the DC and the district, and more support for Member to Member communications. While several HIR business units do provide support for these challenges, none are dedicated to it.

This area of focus aligns with the following recommendations in H.Res. 756.

- Section 302 – Providing Technologies to Improve Constituent Engagement
- Section 303 – Streamlining Approval Process for Outside Technology Vendors
- Section 304 – Enabling Early Adoption of New Technologies and Application by Offices
- Section 305 - Improving Member Feedback Regarding Outside Vendors and HIR Services
- Section 306 - Leveraging Bulk Purchasing Power of the House

The Office 365 implementation provides a blueprint for how to engage with Members, as that implementation included highly effective focus groups that were directly responsive to House offices. HIR should build on this success and develop a formal program of Member office engagement and consider forming a business unit focused exclusively on finding technical solutions to the business challenges faced by Members.

The substantive responses I provide to Sections 304 and 305 provide some beginning to this focus area. However, I expect the new CIO to bring fresh ideas and approaches to this area.

4. Continued Integration of the House Technology Infrastructure with the Cloud

Cloud services will continue to provide a huge opportunity for the House to innovate. These services will become even more deeply integrated with the House network, communications systems, authentications systems, and even financial systems. While currently invisible to most Members, how the House infrastructure continues to evolve to leverage future cloud services is a critical to ensure Members can use these future services easily and securely.

5. Bring World Class Technology Support to Member Offices

For most Members, their only experience with HIR is through their assigned Technology Partner. The Technology Partner provides traditional systems administration and technology support at no cost to Member offices. Unfortunately, too many Members are not confident in this service and fear HIR will not be responsive to their needs. HIR must find a way to consistently deliver these services so Members no longer feel the need to rely on technology support vendors. I feel particularly bullish that HIR is ready for this challenge and is ready to provide service and support that is second to none.

This area of focus aligns with the following recommendations in H.Res. 756.

- SEC 306: Leveraging Bulk Purchasing Power of the House

To supplement the analysis my management team conducted, I have asked the House Inspector General (OIG) to conduct a management advisory on the state of HIR to guide the next CIO. The advisory will focus on the themes above and leverage work the OIG has already conducted related to the challenges of technology support in the House.

I intend to conduct a nationwide search for the next CIO for the House. I will actively solicit feedback from the Committee, bi-partisan leadership, and the other House Officers on what skills and characteristics the next CIO must have to build upon the progress already made. I expect the next CIO to continue to provide the leadership, vision, and discipline to make significant progress across the five focus areas identified above and any additional areas of concern and opportunities the Committee identifies. Once selected and onboarded, I will direct the new House CIO to produce within six months a report for the Committee on how HIR must continue to evolve to meet the needs of Members and the broader House.

Finally, I have asked Ms. Szpindor to produce a memorandum on her recommendations for the next CIO, HIR, and technology modernization in the House generally. While her guidance is reflected in the recommendations contained within this response, I encourage you to interview her directly as part of her offboarding process to gather any additional perspective she may have. I have relied upon her guidance and wisdom for the past four years and have always found it invaluable.

In the following sections I provide more detailed responses and recommendations related to specific sections of H.Res. 756. I look forward to continuing a discussion on all these topics and to respond to any questions you may have.

Sincerely



Philip G. Kiko

Chief Administrative Officer

Addendums

- Response to Section 302, Providing Technologies to Improve Constituent Engagement
- Response to Section 303, Streamlined Approval Process for Outside Technology Vendors
- Response to Section 304, Enabling Early Adoption of New Technologies and Application by Offices
- Response to Section 305, Improving Member Feedback Regarding Outside Vendors and HIR Services
- Response to Section 306, Leveraging Bulk Purchasing Power of the House

Appendixes

- Appendix A - Current and Planned HIR Modernization Initiatives
- Appendix B - CAO Strategic Technology Plan 2019-2023
- Appendix C - House Cloud Strategy
- Appendix D - CAO Innovation Program
- Appendix E - Envisioning a Tech Forward Future at the House

Section 302 Providing Technologies to Improve Constituent Engagement

The Committee on House Administration may issue regulations or take any other steps as may be required to ensure that Member offices have the necessary technology and software to improve the efficiency and operation of Member offices and to improve constituent engagement, including, as soon as practicable after the date of the adoption of this resolution, the implementation of the following:

CAO Response

While the CAO was not formally directed to provide a response to Section 302, I believe HIR has made tremendous progress across all four areas identified in this section.

I would specifically note:

1. The authorization and purchase of licenses for Microsoft Teams, WebEx, and Zoom for video conferencing for all Member, Committee, and Leadership offices. This software is in addition to several other no cost/low cost conferencing options already authorized, such as Skype and VSee.
2. The identification of a joint project with the Senate to use electronic signatures to sign correspondence.
3. The House response to COVID-19 that has provided both Members and staff to securely and seamlessly access House resources from nearly any place or time.
4. A provisional plan delivered to the Committee to significantly improve the constituent engagement tools available to House offices.
5. The negotiation of better prices for tele town hall conferencing software so Members could more easily engage with their constituents safely during the pandemic.

I look forward to any additional guidance and direction on how the CAO can continue to modernize in each of these areas.

Sec. 303. Streamlined Approval Process for Outside Technology Vendors

(a) Requirement.—Not later than 90 days after the date of the adoption of this resolution, HIR shall submit a report to the Committee on House Administration describing the steps necessary to create a streamlined process for the approval of outside technology, including a discussion of unique legal, statutory, or other considerations relating to the House environment, costs, obstacles to creating and operating such an approval process, and security or other issues relating to such a process.

CAO Response

Executive Summary

This section reviews the regulatory framework governing technologies vendors within the House of Representatives, note gaps and challenges vendors have with meeting House standards, and makes recommendations on potential approaches the Committee might consider addressing those gaps.

As mentioned, cybersecurity threats, constitutional Speech or Debate protections, House rules, appropriations law, and the decentralized nature all present challenges for rapid technology adoption – and those challenges apply to prospective technology vendors. The Committee has adopted rigorous standards for these vendors and has assigned to the CAO the role of vetting vendor compliance. The CAO reviews vendor proposals against these standards and make recommendations to the Committee for consideration. The Committee has plenary power to overrule CAO recommendations and, consistent with applicable law, authorize any vendor to provide services to House Members. In practice, the Committee has taken a consistent vendor neutral approach and has only authorized vendors that have met House standards as validated by the CAO.

In my experience, some rank and file Members are certainly frustrated with the standards adopted by the House to vet vendors. I am very sensitive to this concern and have attempted to draft recommendations for the Committee’s consideration that are responsive to Member concerns. Nonetheless, I am obligated to rigorously validate vendors against the standards set by the Committee and will continue to do so to protect the House.

Policies Adopted by the Committee

Several policies set rules for technology vendors within the U.S. House of Representatives. They are:

1. The Member and Committee Congressional Handbook
 - a. “The Committee has set standards for many technology contracts in the Services section of the Guide to Outfitting an Office.
 - b. “All official electronic communications must comply with House information technology and security policies as approved by the Committee on House Administration.”
2. The Guide to Maintaining and Outfitting an Office
 - a. “The CAO authorizes vendors to provide maintenance services required to support the operation of office equipment assigned to House offices. The CAO shall authorize

maintenance vendors based on standards approved by the Committee on House Administration. A Member or Chair may enter into a contract with a CAO authorized vendor by submitting an approved Client Work Order (CWO).”

- b. “Correspondence Management Systems (CMS) Offices may only order CMS systems from a list of vendors authorized by the CAO. Offices must use an authorized CWO to order CMS services. The CAO shall authorize CMS vendors based on standards approved by the Committee on House Administration”
- c. “The CAO provides web services to Members at no charge to the Member. Offices may only order web services hosted within a House controlled domain (such as House.gov) from a list of authorized web vendors. Offices ordering web services must use an authorized CWO. The CAO shall authorize web vendors based on standards approved by the Committee on House Administration.”

The CAO has developed, and the Committee has approved, three broad implementation policies that describe the rules and procedures vendors must follow. They are:

1. Master Technology Service contracts that cover Technology support and Correspondent Management Vendors. Under these contracts the Committee has authorized:
 - o Six Correspondence Management Vendors
 - o Eight Maintenance/Systems Administration Vendors

HIR actively solicits for new vendors every four years. Offices may request HIR consider new vendors at any time, though there are some practical limits on reviewing new vendors as we approach the end of the period of performance.

2. The Master Web Vendor contracts that vendors providing web development and hosting services for the House offices. Under these contracts the Committee has authored 16 active House web vendors. New web vendors can be considered any time based upon a House office request.
3. House Information Security Policy for Protecting House Data in Cloud and Non-House Technology Solutions (HISPOL 17) provides the framework for reviewing external cloud vendors. HIR has reviewed 123 different cloud services through this process. 72 have been authorized by the Committee, nine are in progress, and 11 have been deemed not authorized.

The CAO performs the following when reviewing vendors.

1. **Cybersecurity review**

The CAO performs a cybersecurity review of the vendor’s proposed technology solution. This review could also include the maturity of the vendor’s security program if appropriate. The CAO has a mature program to review technologies hosted on the House network. However, most new technology solutions are hosted in the cloud. For those reviews, the House must rely partially on third party sources, such as the Federal Risk and Authorization Management Program (FedRAMP). This General Services Administration program provides a standardized approach to security assessment, authorization, and continuous monitoring for

cloud products and services. In addition, the CAO relies heavily on information about the cybersecurity risk based on data by the CAO's Cloud Access Security Broker vendor.

2. **Required Features**

For some technologies, primarily Correspondence Management Systems, the CAO validates that required features are present and functioning. For example, the House requires CMS vendors to provide features such as householding and the export and import of constituent data. During the next contract period starting in 2021, CMS vendors will be required to integrate with House enterprise solutions, such as the House electronic signature for constituent casework.

3. **Vendor Maturity and Financial Stability**

The CAO reviews the maturity and financial stability of the vendor. This standard varies by technology solution and the sensitivity of the data. For example, because protecting constituent data is so important, and the constituent engagement process is so critical to Member office operations, Correspondence Management vendors are held to a very high standard as it relates to vendor maturity.

4. **Contract terms** - Vendor acceptance with standard terms and conditions of the House which incorporate:

- a. Standard federal government contracting terms related to prohibiting advance payment and no unlimited indemnification as required by the Anti Deficiency Act
- b. Incorporation of Speech or Debate terms for those vendors hosting House data.

Vendor Challenges with the Current Regulatory Framework

The existing contracts and review processes provide the following challenges for prospective new vendors:

- Many smaller vendors are not used to dealing with organizations with the security standards and the risk profile of the House of Representatives. They do not have available SOC compliance documents or other standard artifacts. Nor are they FedRAMP compliant. This requires the House to attempt to perform due diligence directly which takes considerable recourse and time. The vendor may also not be responsive to inquiries from the CAO.
- Some vendors do not have mature security programs, which raises a red flag for any technology solution hosting Speech or Debate, constituent, or other sensitive information.
- The House does not have an environment where vendors can test their solution.
- In some spaces, vendors who use agile development processes to provide incremental features find it difficult to provide technology solutions to the House. For example, a minimally viable product for a CMS solution would require all basic features before being reviewed by the House. These House Technology Service contracts do not have a mechanism to support this development approach.
- Civic and open government groups would like to provide technology services and guidance to the House at no cost. However, the gift rule precludes the House and House offices from accepting free services.

- Some vendors are unwilling or uninterested in modifying their standard terms and conditions to incorporate the Speech or Debate and indemnification terms. The CAO is unable to recommend vendors who do not agree to these terms.
- The House CMS vendor market is small and does not currently support innovation. The current vendors compete against each other on new sales every Congressional cycle and have a substantial advantage over prospective new vendors. Established cloud-based CRM vendors have made a business decision to not enter this market because upfront costs are high and are unwilling to invest in the required sales program to market their services directly to Members.
- Member office budgets are low, and Members are forbidden from pooling their resources to develop technology solutions.

Recommendations

The CAO reviewed the current regulatory framework and challenges documented above and developed the following recommendations for the Committee's consideration. These recommendations focus not on relaxing House standards, but rather on providing Members low risk approaches to innovate with new technology.

1. The CAO has developed a new, streamlined HISPOL 17 review process that, assuming vendor responsiveness, should result in most cloud reviews taking no more than 60 calendar days. The CAO expects to submit the revised HISPOL 17 before the end of the calendar year.
2. The House will need to develop specific policies and procedures to review and authorize mobile applications, especially those applications develop for the House workspace. The CAO expects to provide recommendations to the Committee before the end of the calendar year.
3. The Committee should consider permitting House offices to accept the risk of using non authorized technology solutions on a provisional basis in the following cases:
 - a. Vendors who do not agree to the Speech or Debate provisions
 - b. Vendors whose maturity cannot be determined

Such provisional authorization should be reviewed on a regular basis and expire upon some reasonable amount of time if the issues remain unresolved. The Member would need to agree to accept the risk of the provisional authorization. No provisional authorization would be granted if:

- a. There is any risk to the House, any other House office, or the House network
 - b. There was any risk to constituent information.
4. Continue with the plan implementation of the House Innovation Lab in 2021. The House Innovation Lab will provide an environment for both Members and vendors to evaluate the suitability of the product for House use.

The Committee should consider prioritizing certain cloud software reviews based on Member need. The current approach, first come first serve, does provide a vendor neutral approach but may not provide Members the most value. A "best of breed approach" where the Committee

and the CAO discover and authorize 3 to 5 of the best technology tools across various categories, for example, cloud storage, videoconferencing, and file sharing. In many ways, the Committee has already taken this approach for remote Committee proceedings, town halls platforms and several other technology tools. The CAO recommends additional adoption of this approach and de-prioritization of one-off review requests to the extent feasible.

Sec. 304. Enabling Early Adoption of New Technologies and Applications by Offices

(a) Requirement.—Not later than 120 days after the date of the adoption of this resolution, HIR shall submit a report to the Committee on House Administration on establishing a program under which Member, committee, and leadership offices may elect to participate in the early adoption of technologies or applications developed by an outside vendor prior to the final approval by the House of the use of such technology or application for such offices, and shall include in the report a description of the steps necessary to set up such a program, the operation of such program, the identification of additional costs that may be incurred by such a program, and the identification of the steps necessary to ensure security and steps necessary to protect against jeopardizing the House enterprise.

CAO Response Executive Summary

The recommendations in Section 304 align specifically with two future focus areas for the next CIO. These are:

- Technology Innovation for the House
- Focus on Member Offices

HIR has two planned projects in FY21 that are directly responsive to this recommendation. This response describes these projects and associated deliverables.

Develop Early Adopters Testing Policy/Pilot – Planned FY2021

HIR has developed a project for a formalized testing and pilot program in 2021. This program will provide House offices with information on how to participate in pilot projects initiated by HIR. The project is currently scheduled to begin in the fall of 2021 and should yield positive results for Member offices by early 2022.

The program will have the following elements:

1. A Communications Strategy to inform House offices about current projects relevant to Members and how to participate. This strategy will build upon lessons learned during the Office 365 implementation process. The communication strategy will include:
 - a. A function within HIR dedicated to Member office engagement that works very closely with CAO Communications and Marketing, the CAO Customer Experience Center, and the Customer Advocates.
 - b. A section of HouseNet dedicated to current projects and programs of interest to Member offices.
 - c. Opportunities for House offices to provide feedback on requirements and features who may not be formal pilot participants or testers.
2. A more formal process to engage with the Committee on House Administration to find or recommend offices to participate in testing and pilot projects. Currently this done ad-hoc as projects arise. The Committee has dedicated Member service functions that provide good

insight into which offices would benefit from and are in a good position to provide feedback during pilot projects. The formal HIR pilot program must continue to leverage these insights.

Buildout and Open Innovation Lab – Planned FY2021

Also planned in 2021 is the implementation of the House Innovation Lab. As conceived, the Lab will provide a safe environment for House offices to evaluate and test software developed by an outside vendor. This could include:

1. Evaluation of software proposed by HIR as part of the early adopters/testing program.
2. Evaluation of software proposed by a House office, either for their individual or for use broadly by the House.
3. Software proposed by outside vendors, either solicited or unsolicited.

The House Innovation Lab will consist of:

1. Processes to engage with external vendors in a vendor neutral fashion that are consistent with House procurement policies and Ethics rules. This project also supports the recommendations outlined in Sections 303 and 304.
2. A cloud environment, sometimes referred to as the House cloud, where vendors can demonstrate, and House offices can test software.

As these are existing scheduled projects, I expect the new House CIO to execute as planned.

Sec. 305. Improving Member Feedback Regarding Outside Vendors and HIR Services

(a) Requirement.—Not later than 90 days after the date of the adoption of this resolution, HIR shall submit a report to the Committee on House Administration on the steps necessary to—

- (1) in compliance with applicable Rules of the House of Representatives and other regulations and standards of the House, create an internal customer satisfaction portal on HouseNet that allows Members and employees to rate and review outside vendors and HIR services;
- (2) annually survey district-level staff and district-specific technology concerns; and
- (3) survey Members and employees on what technologies they would like to use.

(b) Regulations.—The Committee on House Administration may issue regulations to carry out any recommendations made in the report required under subsection (a) or take any other steps as may be required to carry out this section.

CAO Response

Executive Summary

Building a formal program to solicit and engage with Member offices as contemplated by the proposals contained within this recommendation must be a priority of the next CIO. HIR must understand both Member satisfaction with the current state of technologies available, but also needs better insight into what future technologies Members would like to integrate into their operations. HIR also must provide more consultative guidance to House offices on which emerging technologies are ready to integrate into their operations.

This recommendation aligns with:

- Renewed Focus on Member Offices
- Technology Innovation

The CAO believes the specific recommendations in Section 305 could provide important information to inform both HIR and Member offices about vendors and technologies worth consideration. The CAO proposes the following immediate steps to implement the recommendations.

Annual Vendor Survey

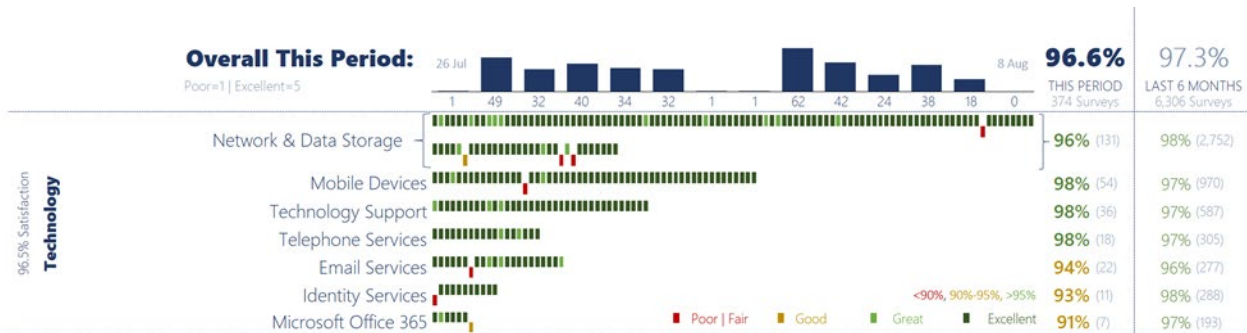
The CAO can conduct an annual vendor satisfaction survey and publish the results on HouseNet. Members typically make technology investment decisions toward the end of the calendar year, so the survey should be conducted in the 3rd quarter so results can be published in time for Member consideration. The CAO has conducted similar surveys in the past, but the results rarely provided much meaningful insight as the rating differences between vendors was narrow. HIR should work closely with the CAO Customer Engagement and Measurement program to craft a survey that provides more meaningful results.

Member Office Survey

The CAO Customer Experience Center has instituted a formal Member office engagement program using the CAO Customer Advocates. The program consists of regular visits with House offices, including district offices, to gauge their satisfaction with current and proposed CAO services. HIR could leverage this program to get detailed feedback from offices on what emerging technologies HIR should prioritize.

Publishing the results from the CAO Customer Engagement and Measurement Program

The CAO has a formal customer measurement program that provides detailed satisfaction ratings on our services, including the services of HIR. Below please find an excerpt of some of the results of this program.



HIR typically scores very highly on these surveys. The CAO is available to use the results to both measure trends and to respond quickly to specific survey problems. However, like past vendor surveys, the actual results may not provide House offices meaningful information about HIR services. To address this problem, the CAO believes the adoption of a Net Promoter Score (NPS) like concept for both vendors and HIR services will provide meaningful data to House offices. The summary of NPS on Wikipedia describes this concept best.

“Net Promoter or Net Promoter Score (NPS) is the percentage of customers rating their likelihood to recommend a company, a product, or a service to a friend or colleague as 9 or 10 (“promoters”) minus the percentage rating this at 6 or below (“detractors”) on a scale from 0 to 10. Respondents who provide a score of 7 or 8 are referred to as “passives” and enter into the overall percentage calculation.”¹

Prior to implementing any specific program under Section 305, the CAO recommends providing the next CIO an opportunity to develop an innovation road map for emerging technology. The program should have four broad components.

1. The implementation of the House Innovation Lab that provides an environment for offices to test and evaluate prospective technologies.
2. A House “Genius Bar” like store front where offices can meet with HIR tech experts, learn about the latest technologies, and learn how to integrate new tech into their operations.
3. The House Early Adopters program as contemplated by the recommendations in Section 304.

¹ From https://en.wikipedia.org/wiki/Net_Promoter on September 8, 2020

4. A dedicated Member office engagement and communication function within HIR that works closely with the CAO Customer Experience Center.

Addendum D provides a high-level outline of what a future emerging technology program might look like.

Finally, I think how Members “vote with their feet” is the most insightful metric into how HIR and House vendors are performing. Currently, 66 Members use HIR exclusively for technical support, a number that is increasing slowly, but steadily. As we build our capacity to provide nationwide technical support for the 900+ district offices, I expect that number to grow. Over 55% of Members use HIR for website design and hosting. Likewise, I expect that percentage to rise in the next Congress as we move to Drupal 8, the open source web content management system built to the latest accessibility standards. I am a firm believer that Members would find these “market share” metrics invaluable.

SEC. 306. Leveraging Bulk Purchasing Power of the House

(a) Requirement.—Not later than 90 days after the date of the adoption of this resolution, the Chief Administrative Officer shall submit a report to the Committee on House Administration on the steps necessary to provide a standard suite of information technology (as described in subsection (b)) for the use of offices of Members of the House, including various packages and options, and shall include in the report an analysis of alternative methods for funding the purchase of such a suite, including increasing the Members' Representational Allowances or creating additional accounts. The report shall also include a detailed marketing and communications plan, including strategies to disseminate information regarding the standard suite to Member offices.

CAO Response

In March, the CAO submitted a proposal to the Committee on House Administration to fully outfit new Members of the 117th Congress with a standard complement of computer equipment. Furthermore, the CAO requested funding for this program in the FY21 Legislative Branch Appropriations program.

The CAO is in the processes of developing the necessary policies, procedures, related support IT systems, and procurements vehicles required to implement this program. Once the related materials are developed, the CAO will request Committee approval again on the detailed program proposal. Implementation for the 117th Freshmen class looks promising.

While not formally part of this proposal, I also believe this program is an opportunity for HIR to aggressively expand and market the Technology Partner Program and demonstrate to Members that they do not need to hire third party support vendors to manage their office technology operations.

The CAO will evaluate the success of this initial roll out to new Members, and based on those results, develop proposals to expand the program to returning Members of Congress. The newly created Modernization Fund may be an appropriate source of funding for program expansion.

Additional Benefits of the Program

Simplification of Administrative Tasks for Member Offices and CAO

- Simplifies New Member equipment acquisition.
- Provides better office setup briefing experience for New Members at New Member Orientation (NMO).
- Simplification of NMO and Transition-related processes for the New Members and the CAO.

Cybersecurity

- Computer standardization improves cyber posture.

House Standards

- Through initial deployment and four-year replacement cycle CAO would always ensure computers are up to House standards.

Device Condition & Quantities

- New Member offices would always receive agreed upon quantities of computers in new (or decent) condition to get their offices up and running on January 3. Automatic upgrades would occur every four years.
- Returning Member offices joining the program would always receive new computers and automatic upgrades would occur every four years.

Streamlined Imaging Process

- New computers would be imaged in advance by the computer vendor which saves time/energy and is particularly valuable during Transition.

Bulk Purchasing & Tagging

- Centralized bulk purchasing is cost effective for the House.
- Tagging assets immediately upon receipt is beneficial to House Asset Management practices.
- Elimination of wait times associated with processing offices' individual acquisitions.

Redistricting

- This program simplifies equipment handling during the redistricting year (2023 deployment).

Addendums

1. A - HIR Modernization Initiatives
2. B - HIR Strategic Plan
3. C - House Cloud Strategy
4. D - CAO Innovation Program
5. E - CAO Strategic Plan

Addendum A

HIR Modernization Initiatives

In Progress or Planned	Completed
<p>SEC 301: Reforming House Information Resources</p> <ul style="list-style-type: none">• Modernizing Travel, Expense, and Invoice Management – Q3FY21• Buildout and open “Genius Bar” – FY2021 <p>SEC 302: Providing Technologies to Improve Constituent Engagement</p> <ul style="list-style-type: none">• Digital Signatures for routing correspondence and forms between Member/Committee Offices. – Q2FY21• CMS Modernization: CAO Provided CMS – Q4FY22 <p>SEC 303: Streamlining Approval Process for Outside Technology Vendors</p> <ul style="list-style-type: none">• Cloud Policy (HISPOL17) – Q1FY21 <p>SEC 304: Enabling Member Offices to Beta Test New Technologies</p> <ul style="list-style-type: none">• Develop Beta Testing Policy/Pilot – Planned FY2021• Buildout and Open Innovation Lab – Planned FY2021 <p>SEC 307: Leveraging Bulk Purchasing Power of the House</p> <ul style="list-style-type: none">• Rollout of a House-wide Equipment Management Capability for 117th Congress Freshman Offices – Q1FY21 <p>SEC 401: Ensuring Accessibility of House Websites</p> <ul style="list-style-type: none">• HIR Web Accessibility Program<ul style="list-style-type: none">○ Phase 1 – Q1FY21<ul style="list-style-type: none">▪ Complete development of the 508 compliant accessibility platform for hosting Member, Committee, and Leadership sites.▪ Acquire independent validation capability○ Phase 2 – Q2FY21 (January)<ul style="list-style-type: none">▪ Launch WCAG compliant Freshmen websites - 117th Congress○ Phase 3 – Q1FY22<ul style="list-style-type: none">▪ Remaining websites’ migration to the new 508 compliant platform○ Phase 4 – On-going continuous monitoring, reporting, remediation, and training	<p>SEC 204: Requiring Annual Cybersecurity Training for Members and Employees</p> <ul style="list-style-type: none">• Implementing KnowBe4 Training – Q2FY20 <p>SEC 301: Reforming House Information Resources</p> <ul style="list-style-type: none">• Recent Enterprise Systems Implemented<ul style="list-style-type: none">○ Office 365 and Teams Collaboration (CAO) – Q4FY19○ Cornerstone Recruiting – Q3FY19○ Cornerstone Learning Management – Q3FY19○ Cornerstone Performance Management – Q4FY20 <p>SEC 302: Providing Technologies to Improve Constituent Engagement</p> <ul style="list-style-type: none">• CMS Modernization Assessment – Q2FY20• Microsoft Teams with Video Conferencing Available – Q1FY20• Office 365 and Teams Collaboration (Meeting & Events) – Q4FY19• WebEx Video Conferencing (Meeting & Events) – Q3FY20• Zoom Video Conferencing (Meetings & Webinars) – Q4FY20• TeleTown Hall BPL to Lower Costs for Member Offices – Q4FY20• Digital Signature Privacy Release Forms Available for CMS Vendors to Implement – Q2FY20 <p>SEC 303: Streamlining Approval Process for Outside Technology Vendors</p> <ul style="list-style-type: none">• Cloud Access Security Broker (CASB) Implemented – Q4FY19• Changes to Streamline Cloud Evaluation Process – Q2FY20

Addendum B

CAO Strategic Technology Plan FY2019 – FY2023



CAO STRATEGIC TECHNOLOGY PLAN

FY2019 – FY2023

ABSTRACT

This document provides an overview of the U.S. House of Representatives, Office of the Chief Administrative Officer/House Information Resources IT Strategic Goals, Objectives, and Supporting Initiatives.



HIR Vision: *Deliver technology services and solutions to the House community with excellence and uncompromising customer support.*

HIR Mission: *Deliver secure and sustainable technology systems, services, and solutions to the U.S. House of Representatives. HIR will achieve this through cooperative relationships with House leadership and offices with an eye towards innovation and exceptional customer service.*

<p>STRATEGY 1</p> <p>Modernize IT systems, services, and capabilities to better align with current and future House needs.</p>	<p>STRATEGY 2</p> <p>Deliver high quality services and support to the House community.</p>	<p>STRATEGY 3</p> <p>Achieve operational excellence for all IT services and systems supporting the House.</p>	<p>STRATEGY 4</p> <p>Transform IT workforce to provide exceptional IT customer service and delivery of forward-thinking technologies.</p>
<p><u>Supporting Objectives</u></p> <p>1.1 Invest in and promote technology that efficiently supports the current and future business needs of Members and staff.</p> <p>1.2 Protect House data and IT assets from current and future threats.</p> <p>1.3 Improve technology coordination and decision making throughout the House.</p> <p>1.4 Identify opportunities to lower the cost of commodity technologies while simplifying the support structure.</p> <p>1.5 Improve Member and Committee access to technology tools for managing data and communicating with constituents.</p> <p>1.6 Ensure the availability of the House IT infrastructure at any time and from anywhere.</p>	<p><u>Supporting Objectives</u></p> <p>2.1 Ensure the portfolio of services offered best matches the House customer needs with available resources.</p> <p>2.2 Consistently improve service delivery processes.</p> <p>2.3 Improve the customer’s understanding of services and how to access them.</p>	<p><u>Supporting Objectives</u></p> <p>3.1 Improve system monitoring and incident response with an eye towards preventing services disruption before they occur and minimizing impact of services disruption when they do occur.</p> <p>3.2 Provide meaningful, timely, and “right-sized” reporting and/or metrics across all IT operational areas.</p> <p>3.3 Improve HIR’s IT governance of systems and services to meet or exceed established SLAs and customer expectations.</p> <p>3.4 Continually develop and enhance robust capabilities to conduct security operations.</p>	<p><u>Supporting Objectives</u></p> <p>4.1 Invest in HIR staff through high value/high reward training emphasizing House/CAO strategic priorities and professional development.</p> <p>4.2 Achieve an organizational culture across all IT staff which aligns with the House/CAO’s IT vision for the future.</p> <p>4.3 Implement an IT organizational structure which fosters the highest standards in operations and initiatives.</p>

Strategic Successes Achieved

- ✓ Strategic Technology Plan Update
- ✓ Tripwire Enterprise
- ✓ Automate Monitoring of Security Configuration Management
- ✓ House.gov Drupalization and Cloud Migration
- ✓ Penetration Testing Program
- ✓ Develop Continuous Phishing Campaigns
- ✓ Box for Enterprise
- ✓ Redstone-Turner Data Center Migration and Activation
- ✓ Internet Bandwidth Increase w/ Capability to Scale
- ✓ Mobile Access for Microsoft O365
- ✓ Joint Congressional Emergency Mass Notification Communications System
- ✓ Enterprise Load Balancing (Intrasite)
- ✓ Active Directory Federation Services
- ✓ HRIS Hardware Replacement
- ✓ PeopleSoft 9.2 Upgrade
- ✓ Technology Service Desk Consolidations
- ✓ Multiple Calendar Access (ISEC7)
- ✓ Hyperion to MCL
- ✓ Seat Management Expansion to House (Evaluation)
- ✓ HIR Services Promotions Campaign
- ✓ Business Service Catalog
- ✓ CIO Sponsored Training/Outreach Program
- ✓ Mobile Device Management Solutions Consolidation
- ✓ Project Management Framework (PMF) Review, Assessment, and Implementation
- ✓ Change Management Program Enhancements
- ✓ HIR Organization and Staffing Assessment/Recommendations
- ✓ HIR Integrated Operations Center Phase 1
- ✓ Virtual Desktop Infrastructure (VDI) Assessment
- ✓ District Office Voice (VOIP) Program Operationalized
- ✓ Franking Commission Kiosk
- ✓ Internal Mentoring Program Pilot

Strategic Projects and Initiatives Planned for Completion in FY19

- Cloud Strategic Plan
- Cloud Services Authorization Process
- Public Websites in the Cloud (Drupal)
- Risk Management Framework Implementation
- Cybersecurity Strategic Plan
- Secure Mail Routing Gateway Upgrade
- Identity and Access Management Phase 1
- Skype for Business to MCL
- VDI Pilot (CAO and targeted MCL)
- Enhanced Secure Facility Integration
- Cloud Enablement for Institutional Vendors
- Peoplesoft Contract Management
- Technology Services Contract (116th Congress)
- CMS Modernization Assessment
- Seat Management to Member Offices
- Unified Communications Phase 1
- Identity-as-a-Service (IDaaS) (Mobile)
- Technology Service Desk Assessment
- Master Web Services Agreement (116th Congress)

**HIR Strategic Technology Planning
FY2019 - FY2023**

Strategy Goal		Supporting Objectives		Program Areas by Objective	Supporting Projects/Initiatives Near-Mid Term (0 – 2 years)	Supporting Projects/Initiatives Mid-Long Term (2 – 5 years)
1	Modernize information technology systems, services and capabilities to better align with current and future House needs.	1.1	Invest in and promote technology that efficiently supports the current and future business needs of Members and staff.	1.1.1 Technology Evaluations Program	<ul style="list-style-type: none"> • Cloud Strategic Plan • Cloud Services Authorization Process • Cybersecurity Strategic Plan • Innovation/Emerging Technologies Program • Containerization Assessment • Robotic Process Automation (RPA)/Intelligent Automation/Augmented Intelligence (AI) Assessments • CMS Modernization Assessment 	<ul style="list-style-type: none"> • House-wide Cloud Strategic Plan • Effectiveness Review of the Cybersecurity Strategic Plan and Update • E-Dear Colleague Assessment
				1.1.2 Major Technology Modernization Initiatives	<ul style="list-style-type: none"> • Public Websites in the Cloud (Drupal) • Public Websites in the Cloud (Non-Drupal) • Unified Communications Phase 1 (Avaya audio, video, and web conferencing; speech to text) • Office 365 • Secure Email Routing Gateway Upgrade • PeopleSoft Contract Management • House Cloud Phase 1 • Containers Phase 1 • Expanded Access to Enterprise Applications and Intranet(Mobile) • Identity-as-a-Service (IDaaS) (Mobile) • IDaaS (Desktop) • FHOB Space Realignment Phase 1 	<ul style="list-style-type: none"> • House Cloud Phase 2 • Containers Phase 2 • Unified Communications Phase 2 • Data Center Modernization (ACF) • Public Key Infrastructure (PKI) • FHOB Space Realignment Phase 2

Strategy Goal		Supporting Objectives		Program Areas by Objective	Supporting Projects/Initiatives Near-Mid Term (0 – 2 years)	Supporting Projects/Initiatives Mid-Long Term (2 – 5 years)
		1.2	Protect House data and IT assets from current and future threats.	1.2.1 Identity and Access Management	<ul style="list-style-type: none"> Identity and Access Management Phase 1 (Identity Hub, Governance, and On-boarding/Off-boarding Review) IDaaS (Mobile) IDaaS (Desktop) 	<ul style="list-style-type: none"> Identity and Access Management Phase 2 (PKI, Privileged Access Management) IDaaS (Applications)
				1.2.2 Risk Management	<ul style="list-style-type: none"> Risk Management Framework Implementation 	<ul style="list-style-type: none"> Continuous Monitoring Automate Monitoring of Security Configuration Management
				1.2.3 Threat/ Vulnerability Management	<ul style="list-style-type: none"> Threat Intelligence Platform Integration (internal) Threat Intelligence Platform Integration (x-Legislative Branch) 	<ul style="list-style-type: none"> Threat Intelligence Integration with Vulnerability Management
		1.3	Improve technology coordination and decision making throughout the House.	1.3.1 Enterprise Architecture	<ul style="list-style-type: none"> HIR Enterprise Architecture Program HIR Software Consolidation/Centralization Integration of HIR and CAO Service Catalogs CAO Enterprise Architecture Program 	<ul style="list-style-type: none"> House-wide Enterprise Architecture Program
				1.3.2 IT Strategy	<ul style="list-style-type: none"> Cloud Strategic Plan Cybersecurity Strategic Plan 	<ul style="list-style-type: none"> House-wide Cloud Strategic Plan Effectiveness Review of the Cybersecurity Strategic Plan and Update
		1.4	Identify opportunities to lower the cost of commodity technologies while simplifying the support structure.	1.4.1 IT Services Commoditization & Simplification	<ul style="list-style-type: none"> Seat Management to Member Offices Enterprise Licenses 	

Strategy Goal		Supporting Objectives		Program Areas by Objective	Supporting Projects/Initiatives Near-Mid Term (0 – 2 years)	Supporting Projects/Initiatives Mid-Long Term (2 – 5 years)
		1.5	Improve Member and Committee access to technology tools for managing data and communicating with constituents.	1.5.1 Constituent Management Systems	<ul style="list-style-type: none"> • Technology Services Contract Modernization • CMS Modernization Assessment • Cloud Enablement for Institutional Vendors • Communicating with Congress (CWC) Modernization Assessment • Digital Mail Modernization Assessment 	<ul style="list-style-type: none"> • Technology Services Contract (2020) • CWC Modernization • Digital Mail Modernization
				1.5.2 Web	<ul style="list-style-type: none"> • Drupal Platform v8 • MCL Website Feature Enhancements • Cycle Project Improvements • Master Web Services Agreement v3 • Cloud Enablement for Institutional Vendors 	<ul style="list-style-type: none"> • Master Web Services Agreement v4
				1.5.3 eNewsletter Service	<ul style="list-style-type: none"> • Listserv Replacement/ Service Improvement 	
				1.5.4 Video Conferencing	<ul style="list-style-type: none"> • Skype for Business to MCL • Enterprise Video Conferencing Assessment 	<ul style="list-style-type: none"> • Enterprise Video Conferencing Consolidation/Implementation
		1.6	Ensure the availability of the House IT infrastructure at any time and from anywhere.	1.6.1 Cloud Adoption/Migration	<ul style="list-style-type: none"> • Public Web to the Cloud (Drupal) • Public Web to the Cloud (non-Drupal) • Application Rationalizations Phase 1 • Containers Phase 1 • House Cloud Phase 1 • Cloud Enablement for Institutional Vendors 	<ul style="list-style-type: none"> • Application Rationalizations Phase 2 • Containers Phase 2 • House Cloud Phase 2

**HIR Strategic Technology Planning
FY2019 - FY2023**

Strategy Goal		Supporting Objectives		Program Areas by Objective	Supporting Projects/Initiatives Near-Mid Term (0 – 2 years)	Supporting Projects/Initiatives Mid-Long Term (2 – 5 years)
				1.6.2 Availability Architecture	<ul style="list-style-type: none"> Virtual Desktop Infrastructure (VDI) Pilot (CAO and targeted MCL) ACF/RT Data Center Migrations Resiliency Standards 	<ul style="list-style-type: none"> VDI House-wide Rollout Enterprise Load Balancing (Site-to-Site)
				1.6.3 Communications	<ul style="list-style-type: none"> District Office Voice (VOIP) Program (Majority Completion) West Coast Point of Presence (POP) 	
				1.6.4 Access/Mobility	<ul style="list-style-type: none"> SSO for Enterprise Applications and Intranet Expanded Access to Enterprise Applications and Intranet (Mobile) IDaaS (Mobile) Unified Endpoint Management (UEM) Assessment 	<ul style="list-style-type: none"> UEM Implementation

Strategy Goal		Supporting Objectives		Program Areas by Objective	Supporting Projects/Initiatives Near-Mid Term (0 – 2 years)	Supporting Projects/Initiatives Mid-Long Term (2 – 5 years)
2	Deliver high quality services and support to the House community.	2.1	Ensure the portfolio of services offered best matches House customer needs with available resources.	2.1.1 Competition	<ul style="list-style-type: none"> • Cloud/SaaS Solutions Offerings for House and CAO Customers • Technology Services Contract Modernization • CMS Modernization Assessment 	<ul style="list-style-type: none"> • Cloud/SaaS Solutions Offerings for House and CAO Customers
				2.1.2 Low Cost/No Cost Offerings	<ul style="list-style-type: none"> • Office 365 	
				2.1.3 Rightsizing Services	<ul style="list-style-type: none"> • IT Services Review/Evaluation • Enterprise License Agreements Expansion 	
		2.2	Consistently improve service delivery processes.	2.2.1 Service Delivery Channels	<ul style="list-style-type: none"> • Remedy Self-Service Expansion and Enhancements • HouseNet CAO Strategic Plan Alignment Phase 1 (CX) 	<ul style="list-style-type: none"> • HouseNet CAO Strategic Plan Alignment Phase 2 (CX)
				2.2.2 Service Simplification or Automation	<ul style="list-style-type: none"> • Support Customer Service Improvements Under CAO Strategic Plan • Financial System Integration Project • RPA/Intelligent Automation/AI Assessments 	<ul style="list-style-type: none"> • RPA/Intelligent Automation/AI Implementations
				2.2.3 Service Delivery Support	<ul style="list-style-type: none"> • Technology Service Desk Assessment • Technology Service Desk Consolidations • Knowledge Management Expansion • RPA/Intelligent Automation/AI Assessments 	<ul style="list-style-type: none"> • Technology Service Desk Enhancements • RPA/Intelligent Automation/AI Implementations

**HIR Strategic Technology Planning
FY2019 - FY2023**

Strategy Goal		Supporting Objectives		Program Areas by Objective	Supporting Projects/Initiatives Near-Mid Term (0 – 2 years)	Supporting Projects/Initiatives Mid-Long Term (2 – 5 years)
		2.3	Improve the customer's understanding of services and how to access them.	2.3.1 Intranet Portal	<ul style="list-style-type: none"> HouseNet Assessment and Redesign Phase 1 CAOnline Assessment and Redesign Phase 1 	<ul style="list-style-type: none"> HouseNet Redesign Phase 2 CAOnline Redesign Phase 2
				2.3.2 Service Catalog	<ul style="list-style-type: none"> Integration of HIR and CAO Service Catalogs Online Service Catalog Consolidation 	
				2.3.3 Marketing and Customer Awareness	<ul style="list-style-type: none"> IT Services Marketing Program IT Services Training Program 	

**HIR Strategic Technology Planning
FY2019 - FY2023**

Strategy Goal		Supporting Objectives		Program Areas by Objective	Supporting Projects/Initiatives Near-Mid Term (0 – 2 years)	Supporting Projects/Initiatives Mid-Long Term (2 – 5 years)
3	Achieve operational excellence for all IT services and systems supporting the House.	3.1	Improve system monitoring and incident response with an eye towards preventing services disruption before they occur and minimizing impact of services disruption when they do occur.	3.1.1 Incident Response Program	<ul style="list-style-type: none"> Incident Playbook Review/Update Monitoring/Reporting Tool Improvements and Consolidation Enhanced Secure Facility Integration Expanded Data Center Infrastructure Management (DCIM) Capability 	<ul style="list-style-type: none"> HIR Integrated Operations Center (Effectiveness Assessment, playbook refinement, and Complete Full Build) Phase 2 Monitoring/Reporting Tool Expansion/Refinement
				3.1.2 Security Operations Center (SOC)	<ul style="list-style-type: none"> Develop Cyber Hunt Team(s) 	<ul style="list-style-type: none"> Cyber Hunt Team Effectiveness Evolve Penetration Testing to Critical Information Systems
				3.1.3 Insider Threat Program		<ul style="list-style-type: none"> Insider Threat Team Identify/Deploy Supporting Insider Threat Toolsets User Behavioral Monitoring Goals
		3.2	Provide meaningful, timely, and “right-sized” reporting and/or metrics across all IT operational areas.	3.2.1 IT Business Intelligence/ Dashboards	<ul style="list-style-type: none"> FinMart Dashboard Expansion for CAO Business Units Dashboards for IT Executives and System Owners IT Cost Transparency & Analytics 	
		3.3	Improve HIR’s IT governance of systems and services to meet or exceed established SLAs and customer expectations.	3.3.1 Operations Governance	<ul style="list-style-type: none"> Quality Assurance Program CAO/HIR Enterprise Architecture Program Project Management Program Expansion 	<ul style="list-style-type: none"> House-wide Enterprise Architecture Program
		3.4	Continually develop and enhance robust capabilities to conduct security operations.	3.4.1 Threat Awareness Program	<ul style="list-style-type: none"> Automate Legislative Branch Information Sharing 	<ul style="list-style-type: none"> Information Sharing with DHS Strategic CyberSecurity Communications Plan

**HIR Strategic Technology Planning
FY2019 - FY2023**

Strategy Goal		Supporting Objectives		Program Areas by Objective	Supporting Projects/Initiatives Near-Mid Term (0 – 2 years)	Supporting Projects/Initiatives Mid-Long Term (2 – 5 years)
4	Transform IT workforce to provide exceptional IT customer service and delivery of forward-thinking technologies.	4.1	Invest in HIR staff through high value/high reward training emphasizing House/CAO strategic priorities and professional development.	4.1.1 Professional Development Program	<ul style="list-style-type: none"> Organizational Skills Assessment Formalized Professional Development Training 	<ul style="list-style-type: none"> HIR Cross-Training Initiative Professional Certification Initiative
				4.1.2 Mentoring Program	<ul style="list-style-type: none"> Internal Mentoring Program 	
		4.2	Achieve an organizational culture across all IT staff which aligns with the House/CAO's IT vision for the future.	4.2.1 Define and Embody our Service Oriented Culture	<ul style="list-style-type: none"> Performance Management Program Enhancements 	
				4.2.2 Workforce Culture Training		<ul style="list-style-type: none"> CIO Sponsored Workforce Culture Training Program (all staff)
				4.2.3 Leadership/Manager Training Program		<ul style="list-style-type: none"> Leadership/Management Training Program Leadership Development Program Expansion
		4.3	Implement an IT organizational structure which fosters the highest standards in operations and initiatives.	4.3.1 HIR Organization Structure	<ul style="list-style-type: none"> Organization Structure Improvements 	

Addendum C

CAO Cloud Strategy



CAO CLOUD STRATEGY

CAO.HOUSE.GOV



ABSTRACT

This document provides an overview of the Cloud Computing Strategy for the U.S. House of Representatives, Office of the Chief Administrative Officer/House Information Resources.

November 2018

Executive Summary

Purpose

The mission of the U.S. House of Representatives (House), Office of the Chief Administrative Officer (CAO) is to provide House Members and Staff with a wide variety of administrative, technical, and operational services. The purpose of this document is to outline a strategy to help the House to take advantage of cloud computing¹ and to help the CAO to automate and to modernize operational IT services.

Opportunity

A monumental shift² is happening in the IT world with the mass adoption of cloud computing and container technologies³. When used effectively, these technologies enable rapid delivery of software and computing resources in a self-service, on-demand, pay-as-you-go model. Ability of IT departments to use and to provide services in such a way is increasingly becoming a defining factor for service delivery success.

Strategy

CAO will develop House Cloud as a set of software and computing resources hosted on the House datacenters and on the public cloud⁴ that can be rapidly provisioned and released in an automated, self-service fashion or “as a service”. CAO will make House Cloud the default option for all new software and hardware deployments and make it a centralized location for all cloud-based House applications.

Objectives

CAO looks to leverage cloud technologies to achieve the following business objectives:

1. Provide expanded IT services and improved application delivery speed to the House
2. Streamline and secure usage of cloud products and services
3. Lower ongoing maintenance costs while preventing vendor lock-in
4. Track and optimize computing resource utilization

Scope

This document applies to CAO-administered software and hardware resources. Implementation of this Strategy will have residual effect on other House Offices. The scope of this document is the business strategy for IT modernization and cloud adoption. Please refer to the House Information Security Policies (HISPOLs) for the types of data and applications that can be hosted on the public cloud.

Audience

The intended audience of this document is the House Leadership, Committee on House Administration (CHA), Committee on Appropriations, CAO leadership, and House Information Resources (HIR) staff and contractors.

¹ “Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.” – NIST 800-145

² <https://www.forbes.com/sites/louiscolombus/2017/02/11/global-cloud-spending-predicted-to-reach-390b-by-2020>

³ A container is a lightweight package of software that includes everything needed to run it: code, settings, system libraries, etc. A set of containers can be quickly started, rebuilt, automatically scaled up or down, and moved between cloud service providers.

⁴ Self-service computing infrastructure provisioned for open use by the general public and hosted on the premises of the cloud service provider. Major providers include Amazon, Google, and Microsoft.

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1. Current State

1.1. Software as a Service (SaaS)

SaaS⁵ products are positioned to provide better out of the box customer experience and reduced time-to-value. They do not tax existing computing infrastructure and often offer monthly pay-as-you-go subscription plans.

CAO manages several enterprise SaaS products for the House, such as the Office 365 suite of products. CAO also enables various other SaaS products for use by the House through evaluation and by facilitating their approval. The list is currently in the dozens and includes as diverse products as event planning, video live streaming, and office productivity suite. Full list is available on HouseNet website.

1.2. Platform as a Service (PaaS)

PaaS⁶ products allow organizations to focus on application development and deployment, providing organizations with the ability to shift infrastructure provisioning and maintenance to the cloud service provider (CSP).

The only PaaS product currently in use is a custom web platform for public Member websites.

1.3. Infrastructure as a Service (IaaS)

IaaS⁷ products allow organizations to add computing capabilities and capacities from various public CSPs on demand, such as storage elasticity for archives and backups, as well as computing resources for development, test, and production environments.

Currently there is no IaaS usage by the House administered by the CAO.

1.4. Datacenter

Computing infrastructure managed by the CAO is comprised of the Primary live and Secondary fail-over datacenters.

1.5. Virtualization

Most of the existing applications are hosted on virtual servers that run on the datacenter hardware. The application types are wide ranging, to include off-the-shelf financial, human resources, service management, and security, as well as varied purposed custom built, and are hosted on hundreds of virtual machines (VMs).

⁵ Software as a Service (SaaS). The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure. The applications are accessible from various client devices through either a thin client interface, such as a web browser (e.g., web-based email), or a program interface. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings. - NIST-800-145

⁶ Platform as a Service (PaaS). The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages, libraries, services, and tools supported by the provider. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications and possibly configuration settings for the application-hosting environment. - NIST-800-145

⁷ Infrastructure as a Service (IaaS). The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, and deployed applications; and possibly limited control of select networking components (e.g., host firewalls). - NIST-800-145

Virtualization solutions currently in use do not have characteristics, such as rapidity and elasticity, to qualify as IaaS.

1.6. Benefits

Existing software and hardware solutions offered to the House benefit from stable enterprise infrastructure, known processes for provisioning resources, change management, security, and data protection.

1.7. Costs

House data center computing capacity is over-provisioned. The process of increasing capacity is a slow and expensive undertaking, and incremental/on-demand expansions are not available. There is no way of decreasing capacity and saving costs on an as-needed basis.

Datacenter hardware upgrades are costly and cause annual budgets to fluctuate significantly.

1.8. Risks and Challenges

Most of the CAO's resources are currently spent on maintaining its existing line of applications (i.e. operations and maintenance), which reduces time for innovation and ability to focus on new and improved services.

Change management is challenging, security practices are mostly manual and cumbersome, and maintenance costs of the existing application line are high.

There is no ability to provision and scale infrastructure on-demand in a rapid manner.

Resource utilization per application or service, as well as total cost of ownership, is a significant challenge to measure accurately.

1.9. House Vendors

Institutional House Vendors (e.g., web and Constituent Management System vendors) do not take advantage of cloud services, which potentially stifles innovation. Formal contract, architecture, and security requirements have not been adequately addressed by CAO to permit these institutional vendors to leverage cloud services.

1.10. Security, Network, and Enterprise Architecture

Current infrastructure and application deployment model does not fully incorporate security, network, and enterprise architecture by default. There have been attempts to address this through the Risk Management Framework (RMF) process and other efforts, however many processes are largely manual and after the deployment. Existing processes may become cumbersome and hard to manage when it comes to using cloud infrastructure from multiple providers, both by the CAO and House vendors.

2. Desired State

2.1. Software as a Service (SaaS)

A comprehensive list of productivity, communication, and other tools is made available for use to the House in a secure, on-demand, and self-service fashion.

Security tools are deployed to enforce HISPOLs across public cloud products.

Automated or manual procedures are in place to archive or to delete inactive user accounts and unused data to save costs and to protect House information assets.

2.2. Platform as a Service (PaaS)

Custom applications are containerized and hosted on the House Cloud when SaaS is not an option.

Continuous integration (CI)⁸ and continuous delivery (CD)⁹ methods are used for rapid application development and delivery.

Microservices architecture is used to extend functionality of existing applications in a loosely coupled, well-defined manner.

2.3. Infrastructure as a Service (IaaS)

House Cloud consisting of primary and secondary datacenters as well as public cloud components deployed as a CAO-managed Infrastructure as a Service (IaaS).

House Cloud will provide additional value to the House by streamlining, securing, and optimizing IaaS utilization from public cloud providers.

Please refer to Appendices A and B for more information about the House Cloud.

2.4. Datacenter

Datacenter computing resources are traced to applications, service areas, and owners by using consistent labeling standards.

Computing elasticity and auto-scaling is achieved both within the datacenters and across public cloud.

CAO can shift the workloads between the datacenters and the public cloud.

2.5. Virtualization

Virtualization footprint is minimized in favor of SaaS and containers. Primary usage for VMs is virtual appliances¹⁰.

2.6. Benefits

2.6.1. Customer Experience

⁸ Continuous integration (CI) is a software engineering practice of merging all developer working copies to a shared mainline several times a day. Each check-in is usually followed by an automated build and integration tests.

⁹ Continuous delivery (CD) is a software engineering approach in which teams produce software in short cycles, ensuring that the software can be reliably released at any time. It aims at building, testing, and releasing software with greater speed and frequency.

¹⁰ A virtual appliance is a pre-configured, ready to run virtual machine image. Virtual appliances are intended to eliminate the installation, configuration and maintenance costs associated with running complex stacks of software.

Wider usage of SaaS products will allow for more choice of applications for the House Members and Staff.

Automation and better usage of House resources will allow the CAO to focus on improving customer experience rather than back-end technology maintenance.

2.6.2. Staff Skills

CAO staff will acquire skills necessary to build, secure, and manage next generation infrastructure and applications, both in the private and public clouds.

2.6.3. Security and Change Management

House Cloud will allow for planning, provisioning, and validating infrastructure resources in a transparent and repeatable manner.

Change Management and Risk Management processes will be vastly improved as all change and policies will be in code that matches what runs in production and that can be easily audited using automation tools.

Container technology will allow for running even the smallest applications in their own containers, limiting surface of attack and separating resources.

2.6.4. Resource Utilization

House Cloud will measure and trace resource utilization to each application and service.

Container technology inherently uses far fewer resources than virtualization technology, allowing the CAO to better use existing and future computing resources.

Elasticity and auto-scaling features of cloud products and infrastructure will prevent over-provisioning resources.

2.7. Costs

2.7.1. Training

Staff training and multiple prototypes will be required to acquire technical skills to implement and to manage House Cloud.

2.7.2. Implementation

Implementing IaaS, PaaS, and complex SaaS solutions successfully will require assistance from one or multiple vendors.

2.7.3. Licensing

Software products that run on multiple clouds may incur additional licensing costs. Evaluating multi-cloud licensing costs will be part of the negotiation process with the software vendors both for existing and new licensing agreements.

2.7.4. Network

With deployment of cloud product there will be increased usage of the House network both from the end users and the datacenter servers.

To address this, a network test plan must be part of any major cloud product deployment.

2.7.5. Public Cloud Network Egress

Public cloud network egress costs are new, substantial, and often overlooked expenses. These costs will be part of the evaluation process for public cloud workloads.

2.8. Risks and Challenges

2.8.1. Security

Attempts to address security concerns later in the process of cloud deployment may not be successful. To mitigate security risks, CAO will make security part of the House Cloud roll-out process from the beginning.

Cloud access security brokers (CASB) is a quickly maturing technology that allows organizations to mitigate many cloud security concerns and will be made a high-priority implementation target.

CAO will establish guidelines and processes for SaaS, public cloud hosting, and containerization security.

2.8.2. Complexity

For the SaaS products, supporting a wide range of similar type solutions may become challenging, therefore CAO will focus on evaluating and recommending authorization of best in class solutions.

For IaaS solutions, the number of containers and the variety of surrounding tools deployed on premise and on multiple vendor clouds may become challenging to manage. To address this, CAO will evaluate and use tools that work across multiple clouds and across container and virtualization technologies.

2.8.3. Maturity

While there is wide adoption of containers and major cloud providers are highly successful, many tools for managing cloud-based infrastructure, especially universal tools that work across multiple clouds, are still maturing.

CAO will perform frequent evaluations of various products and tools, as well as build proof of concept solutions to keep abreast of the latest technologies and their limitations.

2.8.4. Inertia

There is a substantial amount of inertia associated with the existing datacenter, virtualization, and enterprise applications in terms of staff skills, technology partners, and software and hardware investments.

To overcome this, CAO leadership will take a firm stance on the cloud-first approach and incorporate it into all future technology plans.

2.8.5. Cloud Vendor Lock-in

Re-architecting applications to suit a given public cloud vendor will lock the House to that cloud vendor in the long term.

To mitigate this, CAO will standardize on container technologies and will prioritize multi-cloud tools for managing infrastructure provisioning.

2.8.6. Loss of Ownership

Hosting applications and data on infrastructure owned by a public cloud service provider entails losing ownership of the facilities, hardware, and parts of the software stack.

To mitigate consequences of such loss, CAO will develop exit plans that allow shifting workloads between public CSPs and private cloud.

2.9. House Vendors

CAO will develop security, architecture, and contract requirements, as well as operational procedures and guidelines, that permit institutional House vendors to securely leverage cloud services.

2.10. Security, Network, and Enterprise Architecture

Security, Network, and Enterprise Architecture will be an integral part of the infrastructure planning and deployment processes from the beginning. CAO will adopt processes to address architectural concerns throughout the lifecycle of applications as well.

2.11. Exit Plans

CAO will have an explicit exit plan for each public cloud engagement or will acknowledge the lack thereof, and evaluate/accept associated risks. CAO will re-evaluate exit plans and risks on a recurring basis.

3. Principles

3.1. House Cloud as Default

Adopt House Cloud as the default option for all new software and hardware deployments and follow the Software/Hardware Rationalization Diagram (Appendix C).

3.2. Outcomes and Capabilities

Focus on outcomes and capabilities, not current processes, to create opportunities for new and more efficient ways of doing business.

3.3. Upskilling Staff

Run frequent prototype projects to build staff skills in new technologies. For prototype execution, plan for a few weeks to a few months depending on resource availability and scope of the prototype.

3.4. Software Order of Preference

1. Standard: out-of-the-box
2. Configuration only: no custom code
3. Customized: additional custom modules
4. Fully Custom: custom-developed code a) cross-platform, b) platform-specific, c) vendor-specific

For each item on the list above, prioritize Open Source, Open Standards-based, and API-enabled solutions for long-term maintainability and compatibility.

Present rationalization for all custom-developed applications and modules.

3.5. Source Code Policy

Follow the direction of the “Federal Source Code Policy” of the executive branch of the U.S. Government: [SourceCode.cio.gov](https://sourcecode.cio.gov) and publish custom-developed code to [Code.gov](https://code.gov) whenever possible.

3.6. Project Management

Follow Digital Services Playbook of the executive branch of the U.S. Government: [Playbook.cio.gov](https://playbook.cio.gov).

Measure the following in the projects:

1. Customer experience improvements
2. Automation in terms of improved time for application delivery and elimination of manual processes for applications and infrastructure
3. Cost effective usage of House’s existing and future resources

3.7. Security

For each project, enforce centralized Security Controls, Logging and Monitoring, and Change Management.

3.8. Contracts and Fiscal Stewardship

Develop standardized contract clauses for the cloud and processes for managing and optimizing cloud spend.

3.9. Living Document

Review this framework on a regular basis and adjust as necessary.

4. Implementation

CAO will follow a phased approach to gain expertise and to carefully evaluate long-term implications of cloud partners and tools.

CAO will prioritize new products and services that can be launched during Congressional Transition to have maximum immediate impact.

4.1. Short Term (1-2 years)

1. Secure SaaS products
 - 1.1. Assess SaaS products
 - 1.2. Deploy CASB
2. Review and update HISPOL 17 and House Information Security Publication (HISPUB) 17
3. Review and update Standard Contract Clauses document
4. Review and update Technology Services Contract
5. Review and update Master Web Services Agreement
6. Establish partnerships with major cloud infrastructure providers
7. Acquire cloud expertise
8. Develop House cloud architecture and establish tenancies
9. Establish processes for SaaS Assessment, Serverless/Containerization Assessment, and Lift-and-Shift Assessment
10. Assess workloads for cloud migration
11. Develop a roadmap for cloud migration
12. House Cloud roll out
 - 12.1. Office 365
 - 12.2. House Storage Gateway
 - 12.3. House Container Platform
 - 12.4. Enterprise-wide Workflow Automation System
 - 12.5. Enterprise-wide Version Control System
 - 12.6. Additional projects as determined following cloud migration assessments
 - 12.7. Start migrating workloads to the House Cloud
 - 12.8. Run production workloads on one or more major CSP

4.2. Long Term (3-5 years)

1. Continue administering SaaS products
2. Mature House Cloud

- 2.1. Continue migrating workloads to the House Cloud
- 2.2. Continue containerizing production applications
- 2.3. Expand usage of workflow automation tools
3. Continuously assess software products for cloud alternatives

5. Appendices

5.1. Appendix A: House Cloud

House Cloud is a set of software and computing resources administered by the CAO that can be rapidly provisioned and released in an automated, self-service fashion or “as a service” and hosted in House datacenters, as well as in the public cloud.

5.1.1. House Cloud SaaS Features:

1. Secured

Centralized management for enterprise supported SaaS products, such as Office 365. Assessment process for all approved SaaS products.

2. Monitored

CASB is deployed across the House.

5.1.2. House Cloud PaaS Features:

1. Version Control

All infrastructure configuration is in a version control system. Centralized enterprise-wide version control system is in place.

2. Workflow Automation

All infrastructure is managed with a workflow automation system. Centralized enterprise-wide workflow automation system is in place.

3. Continuous Integration

All code builds and deployments go through a Continuous Integration system¹¹. Centralized enterprise-wide Continuous Integration System is in place.

5.1.3. House Cloud IaaS Features:

1. Multi-Cloud

Uses computing resources both from private and potentially multiple public infrastructure providers.

2. Metered

Computing resource utilization is traced to specific applications and computing costs are explicit.

3. Portable for Applications

Applications hosted on the House Cloud can be moved between private and various public clouds.

4. Portable for Data

Data hosted on the House Cloud can be moved between private and various public clouds.

5. Containerized

To allow for the above portability, as well as unified management, monitoring, and control, as many as possible applications hosted on the House Cloud are containerized.

6. Secure

¹¹ Continuous Integration is a software engineering practice of merging all developer working copies to a shared mainline several times a day. Each check-in is usually followed by an automated build and integration tests.

House Cloud follows security best practices, as well as uses additional controls, monitoring, and incident management to ensure security.

7. Resilient

House Cloud IaaS is architected in a way that guarantees continuous operations in case of hardware failures or even regional outages.

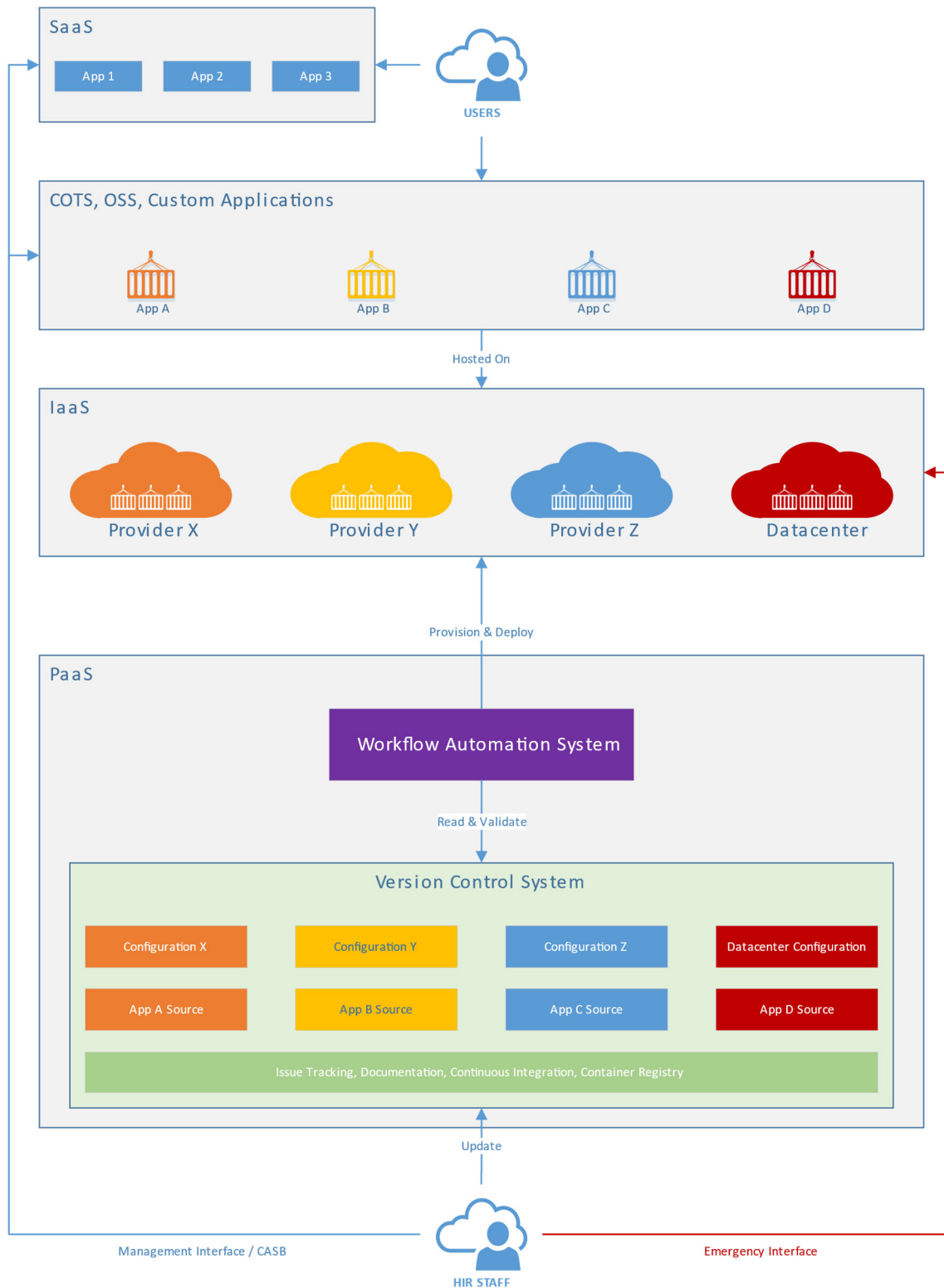
8. Immutable

Servers are not modified after they are deployed. If something needs to be updated, fixed, or modified in any way, new servers are built from a common image with the appropriate changes provisioned to replace the old servers. After they're validated, they're put into use and the old servers are decommissioned.

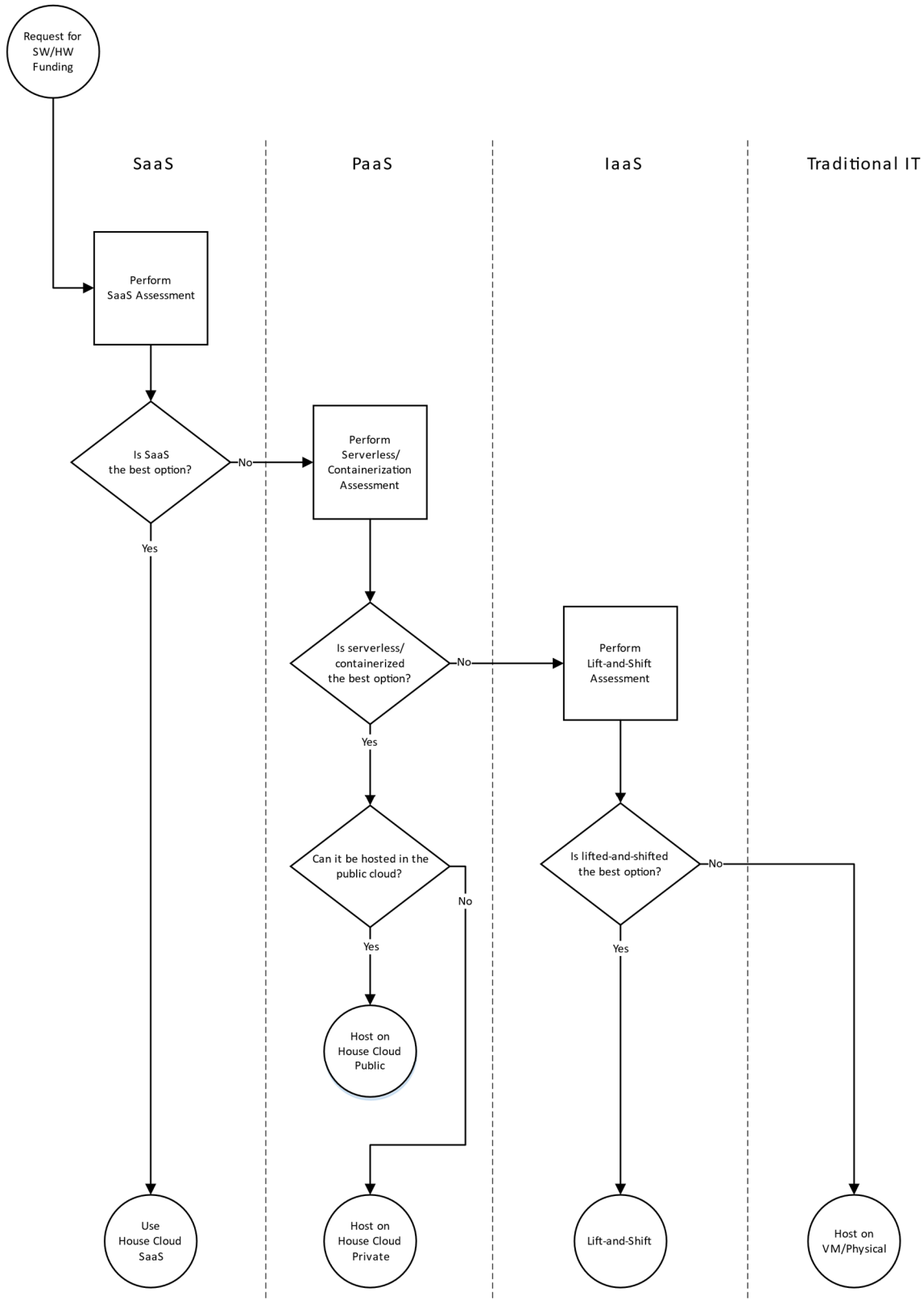
9. Infrastructure as Code

Computing resources are provisioned and managed through machine-readable definition files, rather than physical hardware configuration or interactive configuration tools. Infrastructure definitions are declarative and tracked in a version control system.

5.2. Appendix B: House Cloud Diagram



5.3. Appendix C: Software/Hardware Rationalization Diagram



5.4. Appendix D: Glossary

Term	Definition
Cloud Access Security Broker (CASB)	On-premises or cloud based software that sits between cloud service users and cloud applications, and monitors all activity and enforces security policies. A CASB may offer a variety of services, including but not limited to monitoring user activity, warning administrators about potentially hazardous actions, enforcing security policy compliance, and automatically preventing malware.
Container	Running instance of a Container Image.
Container Image	Container image is a lightweight, stand-alone, executable package of a piece of software that includes everything needed to run it: code, runtime, system tools, system libraries, and settings.
Cloud Operating System	Cloud operating system that controls large pools of compute, storage, and networking resources throughout a datacenter, all managed through a dashboard that gives administrators control while empowering their users to provision resources through a web interface or API. Examples are OpenStack, AWS, Azure, Google Cloud.
Cloud Storage Gateway	Network appliance or server which resides at the customer premises and translates cloud storage APIs such as SOAP or REST to block-based storage protocols such as iSCSI, Fibre Channel or file-based interfaces such as NFS or SMB. Examples include AWS Storage Gateway, Azure StorSimple, and Google Cloud Storage FUSE.
Continuous Integration (CI)	Software engineering practice of merging all developer working copies to a shared mainline several times a day. Each check-in is usually followed by an automated build and integration tests.
Declarative	The way of building the systems by describing their end state, rather than the way to achieve that state.
Dockerfile	A text file containing source code used to build a container image.
GovCloud	Cloud computing products and solutions that are developed specifically for government organizations and institutions. Major public cloud service providers offer GovCloud solutions, such as Amazon Web Services (AWS) GovCloud and Microsoft Azure Government.
Hybrid Cloud	Composition of two or more distinct clouds (private or public) that remain unique entities, but are bound together by technologies that enable data and application portability.
Immutable Infrastructure	Practice when servers are never modified after they are deployed. If something needs to be updated, fixed, or modified in any way, new servers are built from a common image with the appropriate changes provisioned to replace the old servers. After they're validated, they're put into use and the old servers are decommissioned.

Infrastructure as Code (IaC)	The process of managing and provisioning computer data centers through machine-readable definition files, rather than physical hardware configuration or interactive configuration tools. Infrastructure definitions are usually declarative and are tracked in a version control system.
Infrastructure as a Service (IaaS)	The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. For example, Amazon Web Services allows the use of various infrastructure elements as a service, such as S3 storage and EC2 virtual servers on pay-as-you-go model.
Open Source Software (OSS)	Type of computer software with its source code made available with a license in which the copyright holder provides the rights to study, change, and distribute the software to anyone and for any purpose. Examples include Linux operating system and Google Chrome Web Browser.
Orchestration	Automated arrangement, coordination, and management of computer systems, middleware, and services. Container orchestration examples include: Kubernetes, Docker Swarm, Amazon ECS, Azure Container Service, and Google Container Engine.
Platform as a Service (PaaS)	The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages, libraries, services, and tools supported by the provider. Examples include Amazon Elastic Beanstalk and Google App Engine.
Private Cloud	Self-service infrastructure provisioned for exclusive use by a single organization comprising multiple consumers (e.g., business units).
Public Cloud	Self-service infrastructure provisioned for open use by the general public. Major public cloud providers include Amazon, Google, and Microsoft.
Registry	Repository for container images. Container hosts connect to registries to download ("pull") images for use or upload ("push") images that they have built. Registries can be public or private.
Software as a Service (SaaS)	The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure. For example, G Suite by Google offers email, productivity and collaboration tools with no on premise software or hardware requirements, except for a web browser and Internet access.

5.5. Appendix E: Related Documents

1. CAO Strategic Plan

This document defines CAO's mission statement, values, strategic goals, as well as customer, process, stewardship, and employee objectives. The document focuses on customer experience and outlines a five-year plan for 2017-2022. Available on CAOnline website.

2. CAO Strategic Technology Plan

This document provides a five-year plan for FY2017-FY2021 for CAO/House Information Resources to modernize IT systems, deliver high-quality service and support, achieve operational excellence, and transform IT workforce. Available on CAOnline website.

3. HISPOL 17

The United States House of Representatives Information Security Policy for Protecting House Data in Cloud and Non-House Technology Solutions (HISPOL 17). This document establishes a framework for the protection of unclassified information stored on non-House systems or infrastructure. Available on HouseNet website.

4. HISPUB 17

The United States House of Representatives Information Security Publication for Protecting House Data in Cloud and Non-House Technology Solutions (HISPUB 17). This document establishes processes for the protection of unclassified information stored on non-House systems or infrastructure. This document is being developed.

5. CAO/HIR Major Hardware, Software and Maintenance Budget Requests FY2018-FY2023

This document lists planned budgets for major hardware and software maintenance and licenses for FY2018-FY2023.

6. CAO/BCDR Lifecycle Replacement Plan FY2018-FY2024

This document lists planned budgets for business continuity and disaster recovery for FY2018-2023.

7. Standard Contract Clauses

This document lists standard clauses, such as Software License Warranty and Service Level Agreements that are attached to all relevant House contracts.

8. Technology Services Contract

Vendors under the Technology Services Contract provide technical and operational support for one or more of the following technology services: Correspondence Management Systems, Hardware Break/Fix, and Systems Administration.

9. Master Web Services Agreement

This document is a contract between the vendor providing public web services and the Office of the Chief Administrative Officer of the House (CAO), acting on behalf of the U.S. House of Representatives. The Master Agreement contains provisions that cover security requirements, technical rules, ownership of House data, management of vendor personnel, method of payment, and penalties for non-performance.

Addendum D

CAO Innovation Program

CAO

Innovation Program

Conceptual Framework

September 9, 2019



CAO

CHIEF ADMINISTRATIVE OFFICER

CAO Innovation Program

Conceptual Framework

Vision: Transforming the Way our Customers Use Technology

We envision a dedicated program

- Driving new and innovative technology solutions across the House focused on Member Office needs
- Promoting existing or soon-to-market technology solutions to Member Offices
- Serving as a bridge between Member Offices and the functional operations within HIR
- Exploring how emerging technologies can help solve Member Office and House business and information challenges



CAO Innovation Program

Conceptual Framework

Short Term Focus (1-2 Years)*

- Core Elements:
 - Form an Innovation Steering Committee or Caucus focusing on Member services
 - Contract changes positioning vendors to deliver services faster
 - Deliver 2019 Quick Wins – **digital signatures***, **streamlining the cloud process***, O365, CMS screen-pop, unlimited voicemail, Network PoP (Central Timezone)
 - Pop-up Marketing Program – opportunity to evolve into the House Genius Bar with a permanent presence and a fixed physical location
 - CMS – improve on key pain-points identified in CMS Assessment, such as lack of automation, social media integration, and email-based approvals (late Sept / early Oct CHA brief)
 - Labs – CAO services and vendor innovation centers of excellence, as well as engagement of the general public
- Other Concepts (may require additional funding):
 - Strategic Outsourcing – use innovation funding to hire temporary experts for quick delivery of minimally viable products
 - Emerging Development Platforms – begin leveraging technologies geared toward automation, business analytics, and rapid application development

*Dependent on requested funding for FY20/21



CAO Innovation Program

Conceptual Framework

Long Term Focus (2-3 Years)*

- Core Elements:
 - CMS Future-State – determine whether CMS will be a CAO, single vendor, or multi-vendor provided ecosystem
 - House Genius Bar – expansion and maturation to offer more capability to Member Offices, such as identification of new challenges, solution vetting, and idea generation
 - Emerging Development Platforms – scale the offering House-wide by providing intuitive tools that enable Member Offices to quickly develop highly tailored apps
 - Labs – focus on how emerging technologies can help solve Member Office and House challenges

*Dependent on additional funding / FTEs





Envisioning A Tech-Forward Future at House

CAO.HOUSE.GOV

Over the past year, HIR has made great strides to move the House towards a forward-leaning, technology-centric, customer-first future. To continue this progress, HIR is proposing investing in 4 key areas over the next few years with high-impact and customer visibility.

1 Cloud

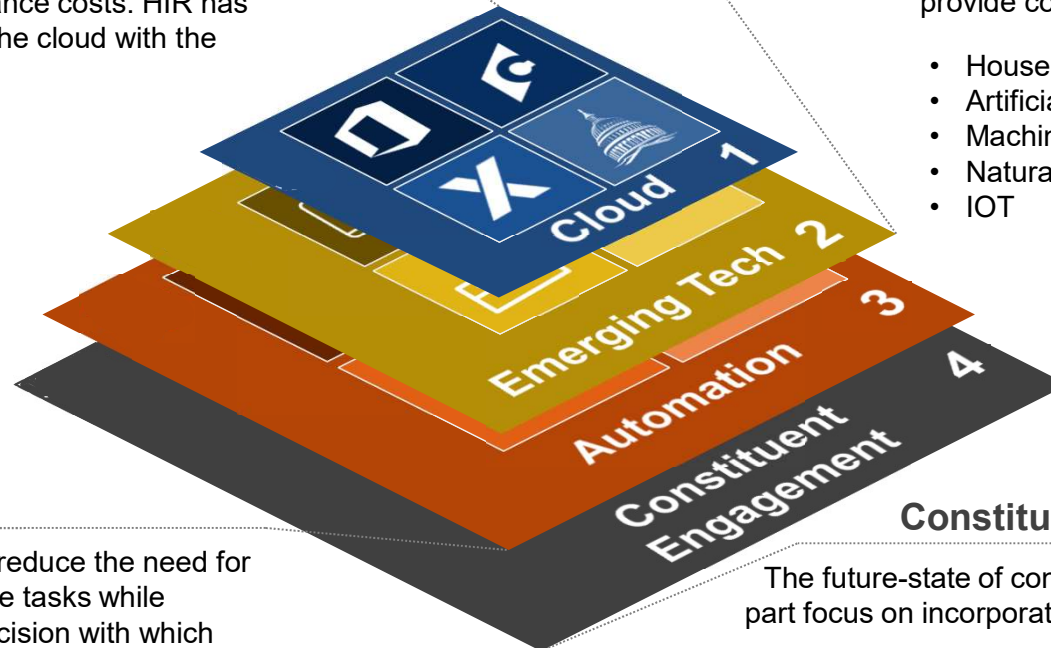
Cloud solutions provide expanded self-service IT solutions, improve service delivery speed, and lower ongoing maintenance costs. HIR has already begun the move to the cloud with the following efforts:

- Cloud Strategy
- Office 365
- Contegix
- Cornerstone
- House Cloud

Emerging Technologies 2

To move forward in today's environment, technology innovation is essential to modernize processes and provide continual value to the House.

- House Innovation Lab
- Artificial Intelligence
- Machine Learning
- Natural Language Processing
- IOT



3 Automation

Automation technologies will reduce the need for personnel to perform repetitive tasks while increasing the speed and precision with which those tasks are performed.

- Finance
- Asset Management
- IT

Constituent Engagement 4

The future-state of constituent engagement will in part focus on incorporating capabilities such as the following:

- Chatbots and LiveChat
- Improved Analytics & Automation
- More Integration (e.g., phone)

Addendum E

CAO Strategic Plan



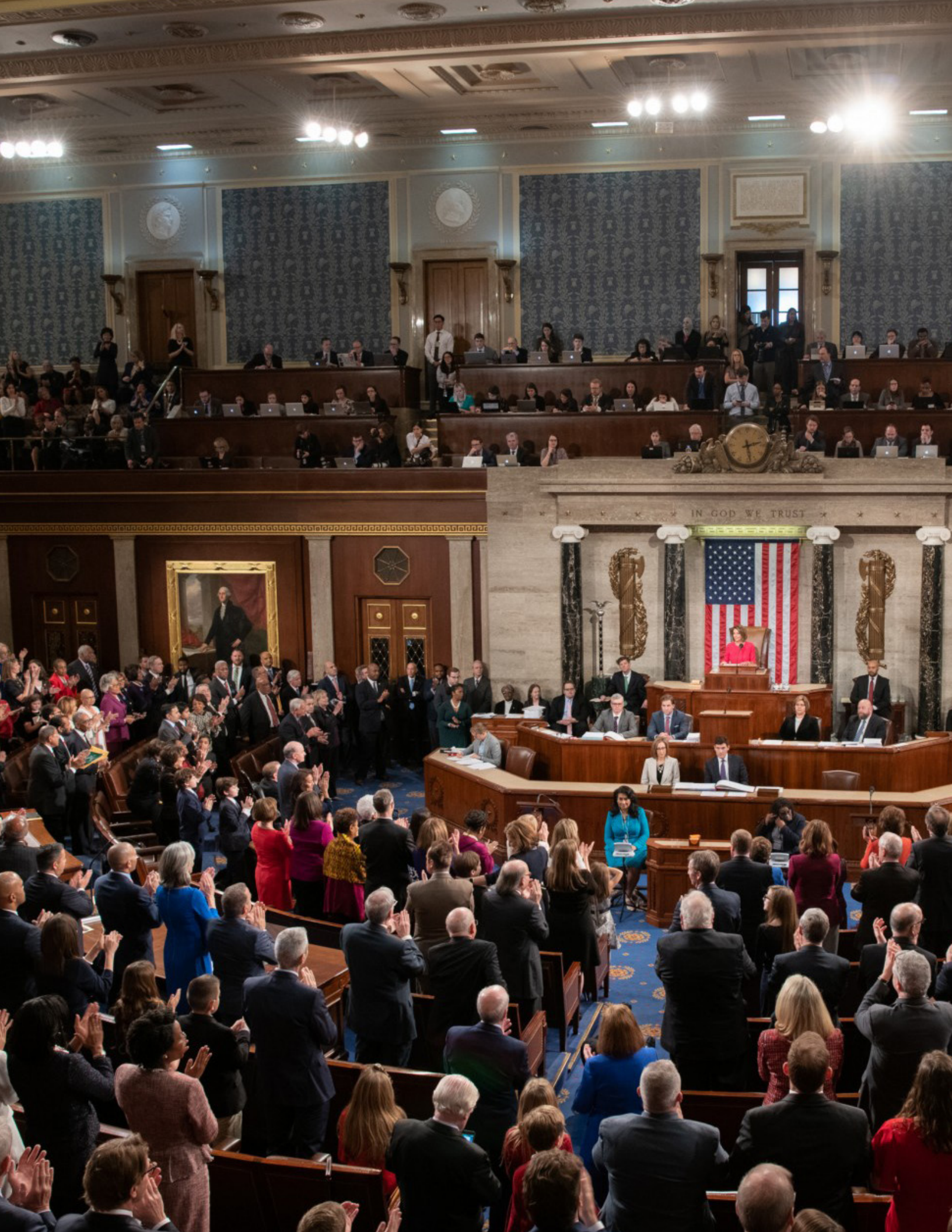
CAO

Member Focused. Service Driven.

MID-POINT EVALUATION AND READJUSTMENT

STRATEGIC PLAN

2017 - 2022





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Customer Objectives
Process Objectives
Stewardship Objectives
Employee Objectives

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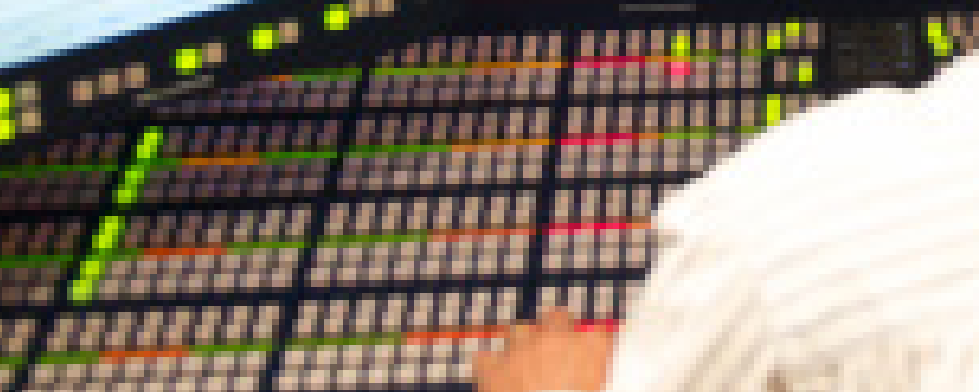
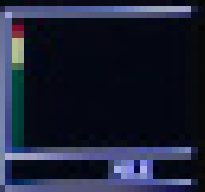
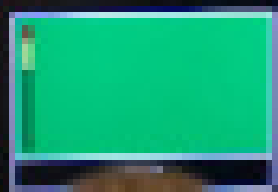
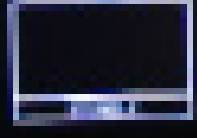
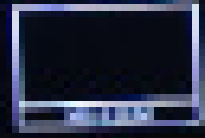
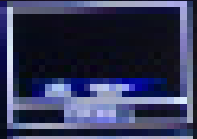
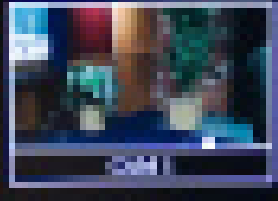
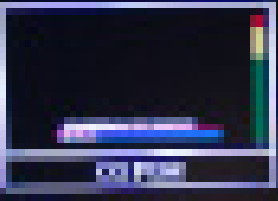
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PROGRAM



MESSAGE FROM THE CAO

In April of 2019, CAO leaders and cross-functional staff reviewed the accomplishments of CAO employees in regards to the strategic plan and in light of the changing environment with respect to industry trends, macroeconomic factors, competitive forces, and internal strengths, weaknesses, and opportunities. This team then set to update the objectives of the initial 2017-2022 CAO Strategic Plan to confirm they were still on track to achieve our vision to be an essential resource to every Member of the People's House.

This mid-point evaluation and readjustment of the strategic plan resulted in four new goal themes, and an adjustment to the goals, as well as updates to the objectives of the strategic plan. These themes will help the CAO to modernize and transform the organization by aligning its services to Member needs while protecting the House, and fostering and engaging CAO staff.

The CAO was created in 1995 and has continued to serve Members and the House Community through its existence. Early on, the CAO worked toward becoming a world-class customer service organization, delivering cutting-

edge solutions to the House Community. This strategic focus led to many improvements to the CAO; however over the last decade as the organization shifted to a more operational, day-to-day focus, the pace of these improvements slowed.

There is an urgent need for the CAO to have a forward-thinking, strategic focus that modernizes and transforms the organization and its services by aligning them to Member needs.

It is vital for the House Community that the CAO evolve and adapt to the ever-changing world around us. Since the development and rollout of the 2017-2022 CAO Strategic Plan, much foundational work has been accomplished, but many new challenges and opportunities are emerging as we reach the mid-point of delivering on our vision.

In 2017, I set the CAO on a path to realize a new vision of the CAO and having worked towards this vision, the next step in the journey, as part of the mid-point evaluation, is to adopt a new phrase that properly conveys our employee's and organization's approach towards delivering on the CAO Vision.

This new phrase is '**Member Focused. Service Driven.**'

The CAO will be undergoing a paradigm shift over the next year to begin a Member-oriented journey. In this journey, they will learn to better understand the needs of a Member office and how they can foster a service-driven approach to improve the customer journey and experience.

This mid-point evaluation and readjustment of the CAO Strategic Plan will help the CAO become an essential resource to every Member of the People's House through outstanding customer experiences delivered by exceptional employees. Over the coming years, the CAO will align to Member needs, modernize and transform its services, protect the House, and foster and engage its staff in order to become a Member Focused, Service Driven organization.

Sincerely,



Philip G. Kiko
Chief Administrative Officer

MISSION AND VISION

The mission of the CAO reflects our customers, our services, and the primary purpose for the CAO's existence.

The vision statement conveys the outcome that our organization will work to achieve over the next five years.

THE CAO MISSION

We serve the House community by providing administrative, technical, and operational solutions so Members can perform their Constitutional duties.

THE CAO VISION

To be an essential resource for every Member of the People's House through outstanding customer experiences delivered by exceptional employees.

CAO VALUES

Our culture will be defined by respectful employees who work together to serve Members and staff by delivering superior solutions with integrity.

In order for the CAO to accomplish its Vision “to be an essential resource for every Member of the People’s House,” every team member of the CAO must live by and embrace the CAO values.



SERVICE

We serve Members and staff through positive customer experiences in every interaction.

INNOVATION

We proactively seek new ideas and deliver superior solutions that exceed the expectations of our customers.

TEAMWORK

We foster unity and collaboration across the CAO and the House Community to deliver exceptional service.

INTEGRITY

We protect the House by doing the right thing for the right reasons.

RESPECT

We recognize and embrace each of our individual strengths and contributions which make the CAO successful.



STRATEGIC GOALS

Each CAO strategic goal focuses on realizing one area of the vision statement. A customer goal has been developed to drive positive customer experiences, a process goal to help the CAO become essential, a stewardship goal to better manage our resources, and an employee goal to build a workforce of exceptional staff.

These goals provide a balanced approach to helping the CAO achieve its vision for the benefit of the institution that it serves.

As part of the mid-point evaluation of the CAO Strategic Plan, the four goals have been adjusted based on the work performed to date and the planned adjustments to the

objectives under each goal.

In addition, each goal has a high-level theme associated with it that sums the intent of the goal into one short memorable phrase. These themes help the CAO to align all of the work that it performs along with its cumulative improvement efforts to the CAO strategic plan.

CUSTOMER

ALIGN TO MEMBER NEEDS

Deliver an increase in customer satisfaction by **understanding Member needs and simplifying the customer experience.**

STEWARDSHIP

PROTECT THE HOUSE

Lower risks to the House through **maximizing investments and safeguarding resources.**

PROCESS

MODERNIZE AND TRANSFORM

Increase use, consistency, and accuracy of our services through **modernizing and streamlining.**

EMPLOYEE

FOSTER AND ENGAGE

Develop and implement a system to foster a **professional, engaged, and mission-focused workforce.**

CUSTOMER OBJECTIVES

The three customer objectives directly support the customer goal, which in turn supports the vision element 'positive customer experiences'. These objectives will help to establish a baseline for customer satisfaction, standardize the customer experience across services, and develop

a customer experience strategy that will further refine the organizational design, tools, and processes for the CAO. The CAO Customer Experience Center, with its Customer Advocates, will spearhead these efforts to help the CAO align to Member needs through engagement and data.



ALIGN TO MEMBER NEEDS

Customer Goal: Deliver an increase in customer satisfaction by understanding Member needs and simplifying the customer experience.

Objective 1

CUSTOMER ENGAGEMENT AND MEASUREMENT

Expand the Customer Measurement Program and develop a measurable formal engagement program for customers by 2020.

Objective 2

CUSTOMER SERVICE STANDARDS

Communicate and implement customer experience standards across all CAO offices by 2020 and define and communicate the CAO Customer Experience Commitment by 2021.

Objective 3

CUSTOMER EXPERIENCE STRATEGY

Develop a comprehensive customer experience strategy that defines tools and processes.

PROCESS OBJECTIVES

The three process objectives directly support the process goal, which in turn supports the vision element 'essential'. These objectives will continue to build collaborative teams to improve, modernize, and transform services by establishing a continuous improvement program.

In addition, they will work to define a meaningful list of services and identify those to target for increasing with respect to use and market share. Consistency and accuracy improvements will apply to all CAO services and will be helped by establishing a quality assurance program.



MODERNIZE AND TRANSFORM

Process Goal: Increase use, consistency, and accuracy of our services through modernizing and streamlining.

Objective 1

BRANDING, MARKETING, AND ACCESS

Increase the awareness of CAO Services by branding, marketing, and simplifying access to CAO Services by 2021.

Objective 2

CONTINUOUS IMPROVEMENT PROGRAM

Implement a continuous improvement program to drive collaboration, knowledge sharing, service delivery, and process efficiency by 2021.

Objective 3

QUALITY ASSURANCE PROGRAM

Implement an enterprise quality assurance framework to enable consistent and accurate service delivery by 2021.

STEWARDSHIP OBJECTIVES

The three stewardship objectives directly support the stewardship goal, which in turn supports the vision element ‘resource.’ These objectives will establish an internal consultancy to provide targeted analyses to CAO leaders on specific services with a view to increase market share, decrease

cost, or improve relevance. In addition, the new CAO Enterprise Risk Management and Internal Control office will continue to improve stewardship of resources, while an investment planning program will enable effective decision-making. Together, these efforts help to protect the House.



PROTECT THE HOUSE

Stewardship Goal: Lower risks to the House through maximizing investments and safeguarding resources.

Objective 1

INVESTMENT PLANNING

Increase resource effectiveness by fully implementing a CAO Investment Planning Program to identify, manage, and evaluate investments by 2022.

Objective 2

ENTERPRISE RISK MANAGEMENT

Identify and assess organizational risk to inform decision makers for resource prioritization by 2020.

Objective 3

RESOURCE EFFECTIVENESS PROGRAM

Implement a consultative service and methodology to enable better decision making based on cost/benefit, market share, & workload analyses.

EMPLOYEE OBJECTIVES

The three employee objectives directly support the employee goal, which in turn supports the vision element 'exceptional employees.' These objectives will develop help the CAO foster and engage with staff through better internal communication

with CAO staff while establishing better employee and organizational recognition efforts. Other results will include continuing to enhance the newly established talent framework by incorporating more data-driven analytics and decisions.



FOSTER AND ENGAGE

Employee Goal: Develop and implement a system to foster a professional, engaged, and mission-focused workforce.

Objective 1

TALENT FRAMEWORK

Enhance and implement a data-driven approach to guide how we recruit, develop, secure, and retain talent.

Objective 2

STAFF COMMUNICATION AND ENGAGEMENT

Foster a culture of both structure, ongoing communication and recognition to facilitate individual and organizational results.

Objective 3

WORKFORCE OPTIMIZATION

Evaluate and optimize our evolving workforce through alignment, succession planning, and organizational design.



CAO

Member Focused. Service Driven.