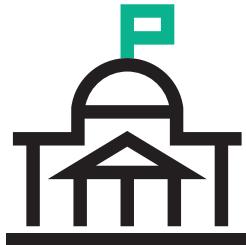


Your Compass to navigate the IT transformation roadmap to reach your right mix of hybrid IT for Government



**Hewlett Packard
Enterprise**



Choose Hewlett Packard Enterprise

HPE delivers all of the infrastructure services, software and systems that a hybrid infrastructure demands.

Turn ideas into action

Command your journey to an automated infrastructure with knowledge to navigate the IT transformation roadmap.

Overview

The IT world is going through major changes and these changes are amplified in the Federal Sector. The move to an automated infrastructure, like cloud, is making Federal CIOs fight for the existence of their data centers on several fronts, including:

- The pressure to meet Congressional requirements imposed by the Federal Information Technology Acquisition Reform Act (FITARA) which calls for Federal CIOs to testify before Congress on the Return on Investment of allocated funds.
- How to take advantage of an IT components consumption model afforded in the FITARA in a cloud based solution.
- How to seek alternative procurement strategies that allow one to maintain current technology.
- Unfunded mandates such as Office of Management and Budget's (OMB) Data Center Optimization Initiative (DCOI), which has: specific data center energy-savings targets; the implementation of Data Center Infrastructure Management tools to measure efficiency of the data center; and the directive that no new data centers will be built.

This document will provide solutions to these issues.

The journey to cloud for Federal CIO is complex, not clear, but one thing is certain... it is disruptive. In fact, many are now calling this journey to an automated infrastructure like cloud "the digital disruption."

Digital disruption is a top-of-mind issue for the Federal CIO. Agency senior executives are looking over their shoulders and wondering if their data centers will be "Ubered" or "Amazoned."

Far-sighted Federal CIOs are asking how they can disrupt themselves to proactively create a cloud based, mission focused data center to meet the requirements handed down by Congress and OMB. Having answers to this question will allow Federal CIOs to respond with their own digital transformation journeys.

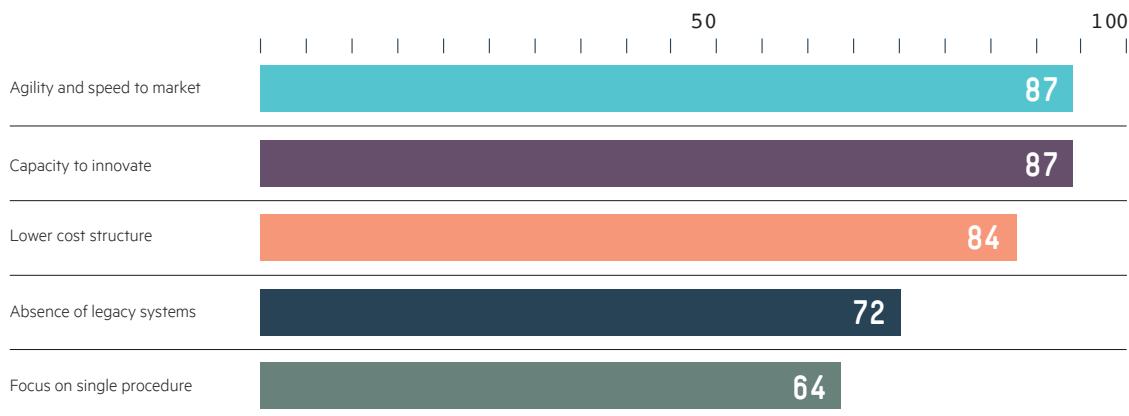
Journeys demand roadmaps, and execution requires deadlines. While each Agency's transition will be unique and complex, it may be helpful to present nine key steps that are consistent across different industries. These are thought starters for those who are planning to disrupt themselves and launch their own digital journeys.

Transformation roadmap and timeline

	Envision the end state	Determine where you are now	Define how you will get there
1. Design your own disruptive business	The end game business model	Gap analysis and strength assessment	Determine the change vehicle
2. Architect the new technology	Optimal IT infrastructure	Legacy technology audit	IT architecture build out
3. Secure your enterprise	Data security strategy	Transformation security	Building security into transformation
Accelerate the time line			6-12 months

Agency assessment of the IT strengths of disruptive insurgents

Percentage of topic listed as somewhat or very important



These are attributes that these traditional Agencies will need to build into their digital business model. If you need to disrupt your own business, look to those who are trying to disrupt you from the outside for a blueprint.

Design your own disruptive business

The first step is to design the end-game business model for your agency—the future enterprise that technology and data security structures will be designed to support.

1. Creating the end-game model: The future model may be such a radical departure from the current mission that the traditional planning process may not work, and traditional planners may feel threatened by the results. Here are three starting points:

- **Begin with your own digital assets.** Every agency has a series of digital initiatives already ongoing—these should be cataloged, reviewed, and used as the starting base.
- **Begin a process of innovation to design the new model.** The use of cloud capabilities can provide an environment in which experimentation can be rapid and failure can be low-cost. This can enable a process of continuing, innovative transformation.
- **Use disruptive insurgents to drive transformation.** In the fall of 2015, a survey conducted by the Rand Institute asked 35 Federal Data Center organizations what they thought were the most valuable competitive advantages of their digital challengers.



Transform IT with confidence

HPE can help your agency simplify a unique or complex IT transition.

2. Gap analysis and strength assessment: The legacy digital footprint does not start from a blank slate—the second step is to assess its current assets and liabilities against the future model.

Much of today's dialogue on disruption focuses on the weaknesses of the traditional Agency—legacy technologies, inability to attract tech talent, and so forth. But it is important to not underestimate existing strengths and assets the traditional Agency brings to the table, including:

- Complex mission critical management
- Cybersecurity skills
- Regulatory requirement implementation

These strengths are key in building a new digital model.

3. Execution—vehicle for digital change: The final step is execution. Some Agencies are turning to inter-departmental acquisitions and vendor partnerships as a vehicle for digital change.

Often incumbent staff struggle to build new cultures, particularly those that threaten the existing environment. New insurgents often need the assets and knowledge of the incumbent staff to break through the disruption. By working collaboratively toward a common mission, insurgent and incumbent staff can accelerate time the achievement of the target model—a critical advantage in the digital space.

In the Rand Institute research on disruption, they found 45 percent of incumbent staff and 53 percent of insurgents believed that the best strategy was for them to join forces as partners or acquisitions. Digital disruption is not always a zero-sum game—a combination of forces may be the best and fastest route forward.

Architect the new technology

Disrupting your Agency therefore requires the creation of a new architecture structured for a new business.

4. Defining the optimal IT architecture: When it comes to self-disruption, the central question is whether and how many applications should be shifted to the cloud. After all, many of the new disruptive Agencies are premised on the low costs and technical agility that automated infrastructure like cloud can provide. Some providers depict this as a binary cloud vs. on-premise decision.

As hybrid solutions exist, this is a false choice. Each Agency will make its own decision on public, private, and on-premise solutions according to its business and security needs. A hybrid solution is not a compromise—it is a means of combining cloud agility with traditional IT predictability.



5. The legacy technology audit: Once the end game is defined, the incumbent must examine its current networks, processes, and personnel not only as assets but as liabilities. For example, early technology leaders may find that their proprietary, server-based systems are liabilities (rather than assets) that are holding them back when compared with nimble, cloud-based data solutions. Legacy IT environments must objectively identify their technology liabilities and make plans to replace them where necessary.

6. Building out the IT architecture: As Agencies redesign their technology, an emerging model is “dual-speed IT”.

Legacy Agencies often find they cannot abandon the legacy technologies that support their mission, public facing interfaces, and custom back office applications. At the same time their mission partners, whose digital expectations have been set by Amazon and Facebook, are expecting nothing less than an outstanding digital interface.

A practical result of the audit is the emergence of co-existing IT architectures—dual-speed IT.

“Organizations need to overhaul their support model to adjust to this new paradigm. A critical element is recognizing that IT needs two speeds of service delivery”¹

- Terry Halvorsen, CTO DISA.

While this model will present significant integration challenges, it is a practical solution to the back-office realities of many Agencies.

Secure the enterprise

The world is a dangerous place, data is widely acknowledged as a vital asset, and in technology must be secure against threats. The fluid nature of the transformation journey presents risks during the journey, but it also presents an opportunity to improve overall security standards.

7. Setting the data security strategy: The Rand Institute asked a survey group—split equally between traditional Agencies and digital disruptors—what the greatest challenge was in the digital journey. Respondents replied that data security is No. 1.

A forward-thinking data security strategy must be designed not just for the present, but for the future business and the projected level of threats. This requires a new degree of flexibility and scalability in security strategies.



Avoid security risks

HPE can help your agency with new security that's flexible and can be scaled up and modified for the cyber risk of tomorrow.

Data security used to consist of high firewalls and locking down the Agency. With the increased sophistication and frequency of cyber-attacks, new security must have the flexibility to be scaled up and modified for the cyber risk of tomorrow, which can only be expected to escalate and become more sophisticated.

8. Maintaining security during transformation: The transformation journey is a period of elevated data security risk. By its nature, transformation brings new entities—some of which may not have equivalent standards—within the firewalls. New devices, new networks, and new employees all present potential entry points. These require an aggressive data security program that keeps pace with and is an essential part of the journey.

9. Transformation as an opportunity: Just as the transformation stage presents risk, it also presents an opportunity to escalate the security standards of the enterprise.

In most legacy agencies, security consists of passwords, firewalls, and software, and remains the domain of the IT professionals. But with the new sophistication and frequency of attacks, security needs to be woven into the fabric of the entire enterprise. Disruption can be turned into an advantage in data security. It provides an opportunity to integrate standards into every part of the agency.

Accelerate the timeline for disruption

Clearly there is no “right” schedule for setting up a new digital business—every agency will dictate its own.

But one element is clear. The agility of the new disruptors and the potential agility of each agency means that digital transformation cannot be business as usual. One thing is for sure—new digital competition to keep one's data center is going to force you to move fast. A rule of thumb held by some industry experts is that most agency transformations should take place within six to 12 months.

This is light-speed for setting up a new business. But there are certain characteristics of the digital world that can enable a faster-than-usual approach:

- Take advantage of agile new technologies—cloud, hybrid cloud, virtualized systems—that present lower development times and allow rapid modification.
- Co-opt the insurgents: Absorbing your most potent digital competitors can bring a ready-made business model, culture, and employees into your enterprise.
- Select and engage strong partners. It is a reality that your current personnel may not have the experience or incentive to create the new business; outside resources can bring expertise and resources to bear.

But this kind of transition will not occur in an overnight big bang. The process must be deliberate, modular, planned, and built into an aggressive timeline. That is the reality of self-disruption and of the digital transformation journey.



Datacenter declassified

HPE can help define what technology your organization should let in and what it should keep out.

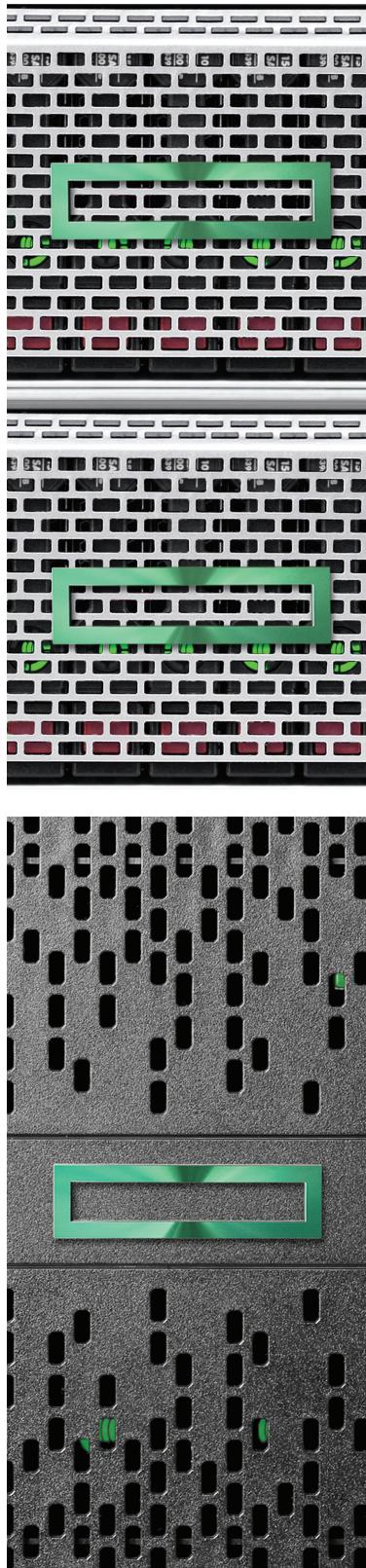
Proposed Approach

The data center has seen technological advances that have many managers trying to figure out what technology they should let in and what they should keep out. Managers are aware that due to many economic and political pressures they must open the door to some of them.

Setting the proper direction is the first step. A transformation journey requires that all stakeholders begin at the same point of demarcation as well as stop and adjust course at periodic intervals to ensure they arrive at the same destination. We recommend that you engage a partner that has proven tools to create a visionary template for how your data center should be future-state configured. This defines your transformation journey destination and will allow you to dramatically improve your level of success in transforming to the New Style of IT and will help you objectively determine your data center's current state capabilities, clarify your objectives for return on investment (ROI), articulate the risk and estimates (high-level) your projected CAPEX and OPEX costs. Essentially, setting you on the right course.

To accomplish this HPE recommends that you first complete a comprehensive assessment of the current state of your data center environment, an Infrastructure Health Check (IHC), to identify risks of service interruptions due to infrastructure and/or operational practices as well as opportunities for cost savings, enhanced customer satisfaction, improved operating efficiencies, etc. A properly performed IHC will also identify services, processes, and tools that are insufficient, not repeatable, or not automated, along with identifying aging infrastructure/platforms and End-of-Life assets with little fail-over or backup that can cripple ability to deliver or meet high availability demands. This will establish the baseline from which to launch the transformation journey.

The IHC should include a network assessment service and data center facilities optimization service. The objective of the network assessment service is to perform an assessment service based on traffic flows in the customer environment. The three areas of focus are data center, WAN, and remote site application flows to the data center.



The objective of the data center facilities optimization service is to provide a detailed assessment, review, and analysis of the current data center framework and facility environment. It will provide the following benefits:

- Analysis of business model, vision, strategy, and objectives based around requirements for the supporting data centers
- Review and analysis of a current risks profile as it relates to business, technology, and data center facility deployments
- Review and analysis of a current technology profile (IT architecture/infrastructure)
- Completed technology growth modeling profile outlining data center space, and power and cooling requirements (current state) over a 10- to 20-year timeframe
- Comprehensive deliverable documentation outlining findings based on the current data center rationalization efforts, including identified existing issues, gaps, and deficiencies, as well as strategies, recommendations, options, and cost projections for moving forward with an optimization strategy
- A matrix provided by the data center facilities assessment team of recommended data center optimization strategies and options with rankings, pros and cons, etc.

The Office of Management and Budget (OMB) recently issued an updated Data Center Optimization Initiative. The DCOI mandates that Federal Government organizations implement an automated Data Center Infrastructure Management (DCIM); 100% power metering of gross footage; 1:4 ration of fully virtualized servers; at least 65% server utilization; at least 80% of GFA to contain; achieve and maintain a measured PUE of < or = 1.5 in existing data center facilities or < or = 1.4 for new data center facilities. The data center facilities optimization service will position you to achieve this mandate through a planned, fixed cost evaluation of your current environment using automated DCIM tool(s). You will be provided with options to achieve the mandate and can then implement the most cost-effective option that meets the customer's workload requirements. The customer will be able to reduce operational cost through implementation of a more efficient Data Center operation with a reduced Energy footprint.

Second, to address the objective of transforming from the current state to a future state with efficiencies (SDI, SDN, SDDC, etc.), we would conduct a Hybrid IT Transformation Workshop.

This is an interactive workshop conducted with key client stakeholders and uses the inputs from the Infrastructure Health Check. The Hybrid IT Transformation Workshop compares your current data center state to that of the desired Hybrid IT future state to produce a roadmap that includes:

- An actionable 30 day initiative roadmap < plan to move forward
- Defines the long term priorities < Business and IT bottlenecks for progress and future improvements
- Aligns your Stakeholders < Business to IT alignment
- Identifies quick wins < Rapid, simple projects that return quick value to you and your business

The roadmap created as part of the Hybrid IT Transformation Workshop provides the much-needed insight to understand the requirements, cost, and length of journey to transform your data center to a hybrid IT environment that takes advantage of the efficiencies and operational cost savings associated with implementing SDI and SDN to create a highly efficient SDDC environment.



Services designed for your agency

HPE delivers services that meet your organization's specific needs.

The outcomes associated with implementing a Hybrid IT environment include:

- Rebalancing CAPEX & OPEX
- Accelerated development of new style of apps
- Extended life of legacy apps
- Improved performance & quality
- Increased efficiency and lower operational costs

Data Center IT Components Consumption Model

HPE Datacenter Care—Flexible Capacity (FC) is an infrastructure utility service based on the converged infrastructure of HPE server, storage, networking equipment, software, and services installed at the Customer's site that is billed on a usage basis (subject to a minimum commitment) and allows the Customer to procure and pay for their capacity needs on a variable monthly usage basis based upon the features of the model purchased. These services will be detailed in a mutually agreed-upon and executed Statement of Work (SOW) based upon the service features described below and the Customer's requirements.

Flexible Capacity is designed for the customer who expects to grow on a consistent basis for a minimum of 3 years and is seeking the benefits of a cloud pay-for-usage model, but who needs the infrastructure to be located at their own site. This utility service provides the Customer with pay-per-use access to HPE servers, storage, networking, software, and services. Buffer capacity is deployed ahead of demand, and the customer pays only when capacity is used, subject to a minimum commitment and the charges associated with the minimum commitment. When the customer's capacity buffer is used, its replenishment is based on the customer's capacity forecast. This provides plenty of lead time for capacity increases to meet new demand and to maintain the buffer capacity. Hewlett Packard Enterprise bills the customer monthly for their usage based on metered data so that charges are aligned with usage. This can help reduce the risk of investing too much or too little in IT infrastructure, as well as help ease the customer's acquisition process for infrastructure on their own premises. Because the customer is billed monthly, there is no large upfront capital expense. Flexible Capacity also allows the customer to dial up their server and storage consumption in a timely manner instead of a potentially long procurement process.

Flexible Capacity basic model - Pay-as-you-GROW model:

- As a minimum, Hewlett Packard Enterprise delivers and charges for the capacity forecasted by the customer over the full term. Capacity used above the forecasted amount will be charged for at the originally confirmed rates, but lower-than-forecasted usage will still be charged for at the forecasted usage level (shrinkage will not be financially beneficial).



Break free with smart investments

Help your organization take advantage of a flexible, scalable and customizable approach to IT acquisition and management with HPE Financial Services.

- The basic capacity is delivered and designed to include an additional 10% buffer capacity that is only charged when a customer uses it.
- In addition to the minimum charges outline above, Hewlett Packard Enterprise will charge the customer monthly for the actual capacity used at a price per server / GB / port / or license, until the end of the contract.

Hewlett Packard Enterprise monitors the consumption of the capacity and buffer on a pay-as-you-grow basis and replenishes the buffer capacity ahead of demand after consulting with the customer.

Financial solutions

Advancements in technology are changing the way business gets done in both the public and private sectors.

Agencies need to break free from traditional modes of operation and look for ways to deliver greater value and innovation. Having the right investment strategy in place can make this a reality and help you to take advantage of new capabilities or solutions that allow you to quickly adapt to change while remaining in tight budget alignment.

Investment solutions from HPE Financial Services can help your agency take advantage of the change already underway and provide a flexible, scalable and customizable approach to IT acquisition and management.

This includes:

- Ability to more efficiently manage rapidly changing technology and investment requirements
- Achieve flexibility to scale technology in line with organizational needs
- More predictably and effectively plan for the “unknown”
- Gain enhanced transparency across the entire IT lifecycle
- Obtain, deploy and rotate technology on a regular, predictable cycle

Getting more value using your O&M budget

Agencies are challenged by increasing demands for new or additional technology and the growing cost of maintaining aging infrastructure.

Providing the innovation necessary to support both new and existing programs is often hampered by decisions made yesterday and capital budgets that are shrinking or not keeping pace with the current and growing needs.

Assets purchased with capital dollars are subject to a five year government depreciation cycle. With IT/SW solutions in a rapidly changing environment and the agency's desire to keep current with technology—purchased assets that have not been depreciated will have the effect of delaying much-needed upgrades in the IT environment.



In response, more agencies are looking to use O&M budgets to fund new IT capabilities, adding more predictability to the budgeting process by matching expenditures with usage and offsetting some of the expense for the new technology with savings on IT maintenance costs.

An acquisition strategy that is less reliant on capital budgets can help speed your IT transformation and provide the flexibility you need to bridge current and future requirements.

Create investment capacity through operational efficiencies

With HPE Financial Services, you can maximize existing IT investments and effectively manage the risk, cost and operational components associated with your technology through an IT Asset Management (ITAM) and refresh strategy.

Benefits include:

- Ability to increase platform standardization sooner resulting in lower IT support costs.
- Providing latest IT functionality without impacting or distracting from other IT projects.
- Retiring assets in a safe, secure and compliant way.

We take a systematic approach to asset recovery and will work with your organization to manage each stage of the process, including transit, tracking, processing, and resale or recycling—all in a way that makes the security of your digital assets our top priority.

Investment solutions that support your transformation

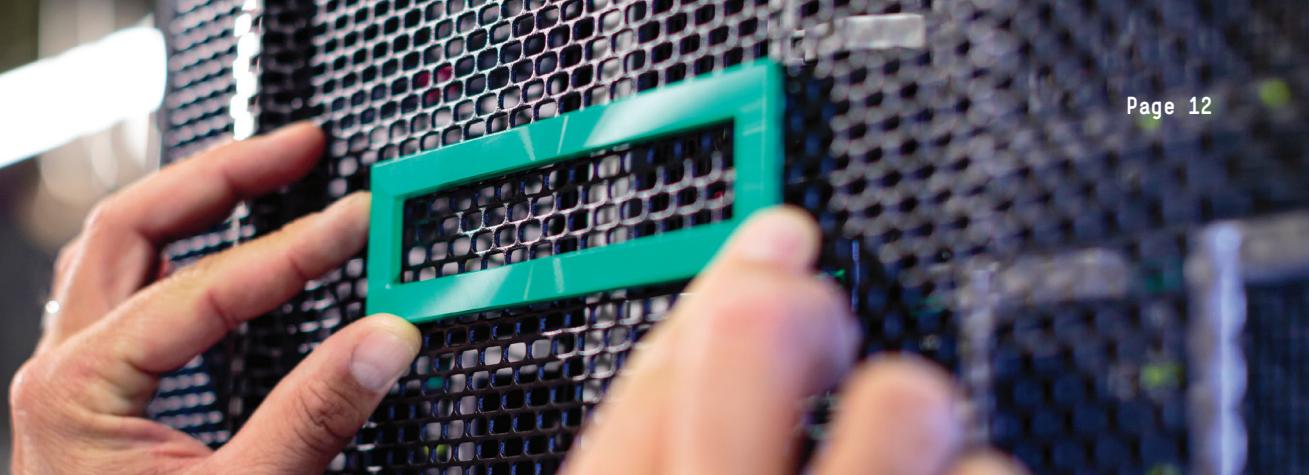
Providing a wide range of flexible IT investment solutions, we can help address your evolving budgetary needs—both today and in the future. Whether you are trying to match payments budgetary needs—both today and in the future. Whether you are trying to match payments with revenues or seeking new usage based models, we can help you explore new and better ways to fund your IT acquisition.

IT investment solutions may include:

- *Lifecycle Refresh*—Support ongoing modernization efforts with flexible investment solutions that support the full IT lifecycle, ensuring technology is refreshed in line with agency requirements.
- *Software Payment Program*—Spread out the cost of your software license extending payment terms aligned with license and support terms.
- *Pre-Provisioning*—Acquire up to 12 months of “advance IT need” on day one. Select a rollout term with payments beginning once technology is activated.

Financial solutions

- Standard Payment Plan Options (FMV or full purchase options).
- IaaS (Infrastructure as a Service) options—to include plans that will allow scalable and flexible payments to meet changing and growing demands with the data center without the need for further capital investment.
- Locating data centers off premises (containerized data centers) to take advantage of lower utility costs.
- Possible teaming with ESPC (Energy Savings Performance Contracts) providers to have energy savings justify and cover costs of new IT infrastructure.



Take an innovative approach

HPE provides you insights and solutions to take the necessary steps in transforming to hybrid IT.

Asset management solutions

- Trade-in credits for surplus IT equipment
- Recycling & asset disposition
- Pre-owned equipment – for purchase or rental.

Considerations in developing a plan

- Anticipated product lifecycles in your environment
- Existing infrastructure
- Cost of maintaining existing infrastructure (Maintenance costs WILL increase over time)
- Demands – both current and anticipated
- Sources of funding/criteria for obtaining funds
- Appropriated funds vs. agency servicing fees
- Capital funds vs. O&M funds
- Availability/predictability of future funding
- Procurement cycle
- Data security—on premises vs “cloud (off premises) solutions”
- Desired level of flexibility
- Desired future state
- Contract vehicle

Summary

We live in an era where technology changes at light speed. Cloud is only one of many changes. Taking advantage of these changes has become a juggling act. This guide provides you insights and solutions to take the necessary steps, including methods to reduce the financial impact on your organization.

About Hewlett Packard Enterprise

Hewlett Packard Enterprise is the industry's leading provider of hybrid IT, built on the secure, next-generation, software-defined infrastructure that will run customers' data centers today, bridge to multi-cloud environments tomorrow and power the emerging intelligent edge that will run campus, branch and Industrial IoT applications for decades to come—all delivered through a world-class services capability.

Learn more at

hpe.com/us/en/solutions/cloud.html

1. Citation: Testimony to the Congressional Armed Services Subcommittee on Emerging Threats & Capabilities BEFORE THE HOUSE ARMED SERVICES COMMITTEE SUBCOMMITTEE ON EMERGING THREATS & CAPABILITIES ON “Information Technology Investments and Programs: Supporting Current Operations and Planning for the Future Threat Environment” FEBRUARY 25, 2015, page 4.

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