

# Manage disruption, meet goals

Data Center Facilities Consulting from HPE Pointnext



# For data center managers, IoT represents yet another disruptive force for the business.

“Every device in every location gathers intelligence continuously in real time. IoT exponentially increases the amount of information that must be processed, analyzed, and acted upon.”<sup>1</sup>

HPE Pointnext provides end-to-end services to help achieve continuous growth. We use experience and knowledge to help you:

- Lower the risk in transitioning to new technologies and service delivery models
- Protect your digital enterprise
- Transform to a hybrid infrastructure rapidly
- Form IT solutions for an idea economy

## Data centers facing a new round of disruption

With projections of over 34 billion IoT devices to be connected to the Internet by 2020,<sup>2</sup> IoT has huge implications for data center managers. As with the disruptive force of cloud and virtualization, Big Data, and mobility trends, IT is bracing for the expected surge in data and increased IT loads. IoT is raising serious concerns about current data center compute power capabilities.

IoT is one of five disruptive trends that Hewlett Packard Enterprise believes data center managers must acknowledge and seek solutions. The others include hyperconvergence, the software-driven infrastructure, building block scalability, and automation for labor efficiency. Technology-based disruptors are seen everywhere in the business world. Today, a company can thrive without owning physical assets. A ride service owns no cars. Banks operate without brick-and-mortar buildings. Retailers display their wares and complete transactions via mobile devices.

Disruptive technologies are impacting the data center. It's important to treat data center facilities and IT assets as a single entity, with a single infrastructure. Not doing so can hurt the operational efficiencies with your data center.

In previous years, data centers expanded rapidly, but today, data center managers are planning for shrinkage due to shifts in workloads into external facilities, virtualization, increased density, as well as dealing with monolithic systems. Moves with leasing and financing are moving from CAPEX to OPEX arrangements, and the emergence of the software-defined facility using tools like data center infrastructure management (DCIM).

## Hybrid infrastructure a key

By 2021, more than 90% of large data centers will revise their strategies due to global socioeconomic and environmental trends. Develop a digital platform and a data center strategy that combine multiple data center options, such as on-premises, cloud, colocation, hosting and edge computing, to deliver compute resources to the business in the best way possible. Commit the time and financial resources required to develop talent to build a strong digital core based on a modern data center strategy.

Recent analysis by Hewlett Packard Enterprise concludes that a hybrid infrastructure can best meet your industry, company size, and service requirements. We believe the right mix of traditional and cloud computing allows you to increase efficiency and reduce costs. Public clouds are now integral piece of a hybrid infrastructure as they have proven benefits for short-term development and testing or for cloud-native applications that do not require storing sensitive data or ensuring compliance.

<sup>1</sup> Top Global Megatrends Impacting Data Center Strategies Published: 17 March 2016 ID: G00301115

<sup>2</sup> [businessinsider.com/how-the-internet-of-things-market-will-grow-2014-10](http://businessinsider.com/how-the-internet-of-things-market-will-grow-2014-10)



Beyond this, an ideal hybrid infrastructure includes a single management toolset that allows you to manage different types of infrastructure. Policy-based placement ensures workloads are deployed to the right infrastructure based on the needs of the workload. A hybrid infrastructure allows you to move traditional applications to the cloud, and allows you to develop and deploy cloud-native applications.

## Transformation in an idea economy

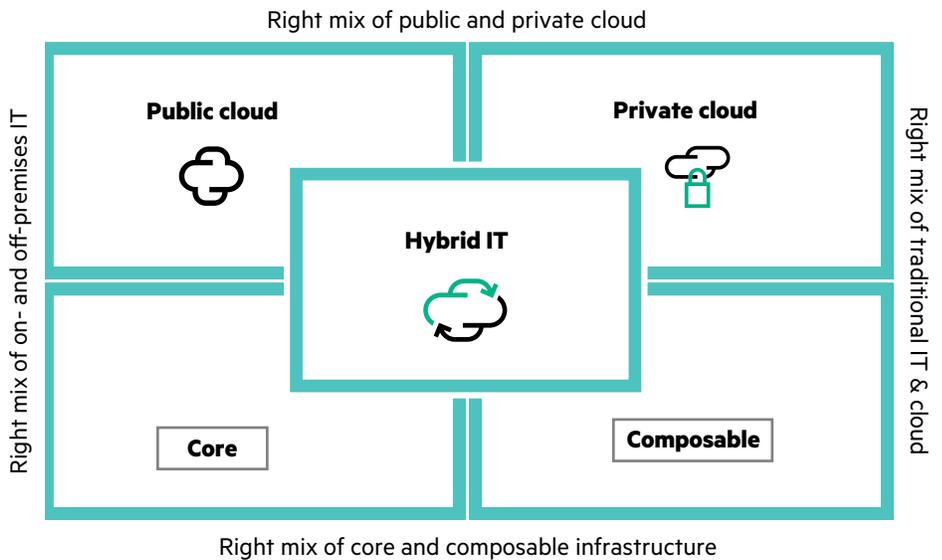
Hewlett Packard Enterprise has listened to customers to understand their challenges with digital technologies and we created a robust portfolio of solutions that cover four transformation areas. Using these areas as cornerstones of your transformation can help prepare you for disruption. Renovate your business with the agility and innovation that is needed to thrive in today's idea economy. Here are the four transformation areas and their importance to your data center:

- **Accelerate delivery of apps and services:** One aspect of the transformation to a hybrid infrastructure is to find the right mix of traditional IT, private, and public cloud. A hybrid infrastructure means fully optimized applications whether in your traditional data center or in a public, private, or managed cloud, all working seamlessly together. In order to create and deliver new value instantly and continuously, businesses need infrastructure that can be composed and recomposed to meet shifting demands, to maximize performance that allows for continuous delivery, improved efficiency, and optimized costs, and to provide agility to handle inevitable disruption.
- **Protect the digital enterprise:** Protect prized digital assets whether they're on-premises, in the cloud, or in between, with proven security and risk management. The transformation of enterprise IT has created a matrix of widely distributed interactions between people, applications, and data on- and off-premises, on mobile devices, and in the cloud. Because security threats can be external or internal in nature and can represent malicious or unintentional actions, enterprises require the skills, resource, and expertise to proactively manage these threats.
- **Empower the data-driven organization:** Harness 100% of relevant data to empower people with actionable data-derived insights that drive innovation, growth, and competitive advantage. A data-driven can help organizations to rapidly and iteratively discover the value of its data through an optimized data-centric infrastructure. This foundation understands and engages with customers by listening and interpreting patterns within your customer data, uncovers competitive advantages and new market opportunities, and uses data to streamline operations and enable a leaner and faster organization.

- Enable workplace productivity:** Deliver experiences that empower employees and customers to achieve better outcomes. The workplace is now digital, with interactions and experiences delivered to employees and customers across a multiplicity of locations, time, and devices. Enterprises must deliver rich digital and mobile experiences to customers, employees, and partners in order to engage employees and improve customer experience. Users expect personal, contextual, and secure experiences.

**Hybrid IT: your new operating model**

At Hewlett Packard Enterprise, we use the four transformation areas to help you build the new products, services, business models, and experiences you need to thrive in the idea economy. We help make Hybrid IT become your new operating model with an optimized digital supply chain for your business and organization. Hybrid IT maximizes business outcomes by placing workloads across a combination of hybrid infrastructure and hybrid cloud solutions and services. It also serves as the agile platform needed for the digital economy.



**Figure 1.** Hybrid IT consists of the right mix between on- and off-premises IT

Data center strategy is based on level of control, capital cost, and OPEX. An on-premises data center offers high levels of control, but it has the highest capital costs and lowest OPEX. Public cloud solutions are the exact opposite. So, getting the right mix is critical. There are a number of elements to hybrid infrastructure strategy that can help make your business successful, including composable infrastructure, a software-defined approach to provisioning and de-provisioning the hardware infrastructure. It provides a common platform that's flexible for different applications by allowing components to be reconfigured to optimize application performance (SDI), whether compute intensive, data intensive, or balanced. Having reusable components can help increase the efficiency and agility of data center resources. Composable infrastructure is mandatory in pursuit of an agile and DevOps strategy. From a facility perspective, modular and software-defined facilities closely replicate the characteristics of composable infrastructure.

Hybrid cloud is the capability of IT to operate and deliver both private and public cloud solutions. The definition of Hybrid cloud is not constrained by a simple mix of public and private cloud; it furthers your capability to enable a Hybrid IT state. Hybrid Service Management combines IT technologies and Service Lifecycle Management capabilities (Automation, Orchestration, Marketplace, Brokering) to enable effective Hybrid cloud computing. Hybrid cloud computing features policy-based and coordinated service provisioning, use and management across a mixture of internal and external cloud services. This offers the ability to extend either the capacity or the capability of a cloud service, by aggregation, integration, or customization with another cloud service.

To date, Hewlett Packard Enterprise has designed over 65 million square feet of data centers globally.

## HPE Data Center Facilities Consulting

At HPE Technology Services, we strive to help you assess your IT mix so you can devise a data center strategy focused on innovation and the transformation process. We begin this transformation process by determining where you are today, and where you want and need to be in the future.

With HPE Data Center Facilities Consulting, we start by helping you craft your IT strategy. Our consultants help you determine how many data centers you'll need, where they should be located, and how large they should be. We walk you through your options of building the data center yourself, outsourcing it, or using a co-location service. Our experts create the blueprints for your next-generation data centers based on specific needs and proven designs that promote agility, scalability, modularity, and flexibility.

With HPE implementation services, we help bring your data centers to life. We manage the entire process, from your energy-efficient design to the building and commissioning of the new facility. For maximum operating efficiency of your data centers, we have launched the HPE Data Center Operations Consulting service. Our capabilities span from early strategy discussions and planning through Design, Implementation, Assurance, and Energy Services, aligning all the key stakeholders with differing agendas and ensuring your Hybrid IT solution meets all of your business objectives.

### Modular data centers

Hewlett Packard Enterprise is a leader in modular data centers. Analysts believe prefabricated modular data center designs will become the new benchmark for speed, predictability, and agility.<sup>3</sup> When you compare customized to modular data centers, CAPEX improves as modularity shifts effort and costs from field to factory. The modular data center approach offers considerable cost savings. And as one size does not fit all, we leverage a number of different reference architectures to meet your specific modular solution requirements.

### Software-defined facilities

Software-defined facilities are the convergence between facility and IT management platforms. Once again, Hewlett Packard Enterprise is in the forefront of data center technology innovation using important partnerships to provide you with a leading DCIM solution. This solution is compatible with IT management solutions like HPE OneView to give you the ability to view your entire operations through a single lens.

Software-defined facilities also help you bridge the gap between existing traditional environments and a Hybrid IT environment that may include traditional and composable infrastructure as well as a variety of public and private cloud options. Below is how we define the software-defined infrastructure at a high level. It's important to note three important outcomes with SDI: enabled automation, simplified management, the dynamic control of the entire infrastructure, and satisfying the needs for greater IT and application performance, and meeting business user requirements.

<sup>3</sup> "2016 Trends in Datacenter Technologies," Rhonda Ascierio and others, 451 Research, 2015

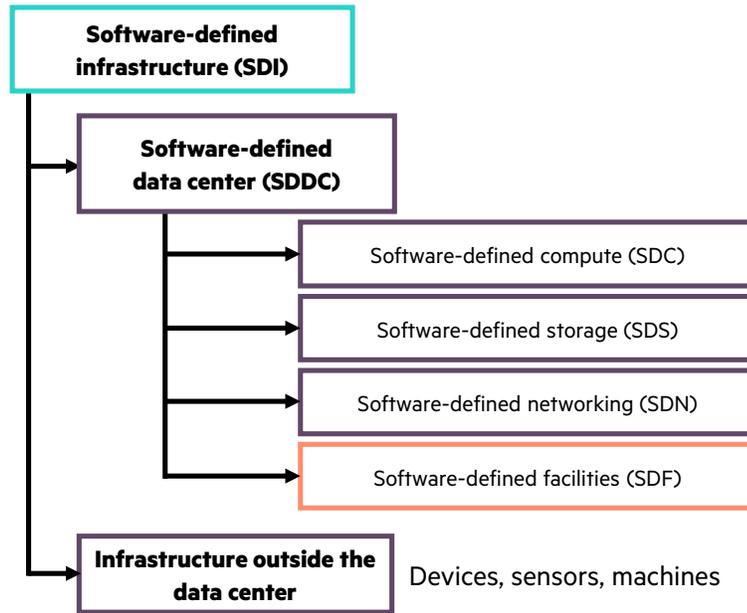


Figure 2. HPE Software-Defined Infrastructure—the wider context

Here’s another view of the software-defined infrastructure integrated with converged management (in green boxes). Converged management is a set of services, tools, and processes that we leverage to create an environment that combines the IT and facility management capabilities of a data center.

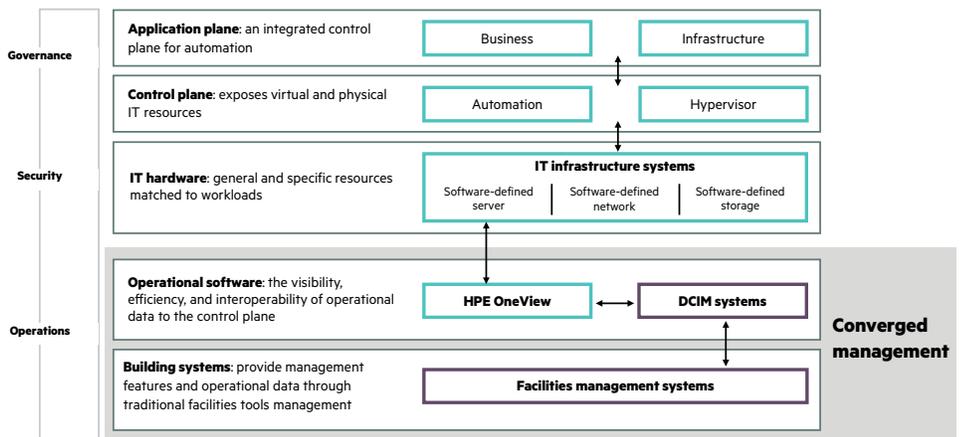


Figure 3. Software-defined infrastructure and converged management

The software-defined facility journey is broken down into the following four clear stages:

- First, we help you create a vision for the future based on industry trends and market intelligence. We add our own unique insight and experience to establish a program of change that could be multi-year in duration. This strategy lays the foundation for an integrated and converged management service and framework, and highlights the key phases necessary to reach a full level of maturity. This phase is underpinned by our SDF workshop service.
- Next, with unique environments, we go deeper to lay out the case for change by describing quantifiable benefits as well as how each phase could be implemented within the context of your journey. This includes the creation of briefs, which cover the activities necessary to reach a desired state and goal. This phase is underpinned by our SDF road map service.

- The design phase covers the detailed design plus project plan to expose the necessary bill of materials and resource structure required to deliver the stated goals from the previous phases. The project plan will align to the activity briefs structured in the discovery phase and would cover such areas as a detailed DCIM solution implementation, DCIM integration activities with HPE OneView, or multiple process improvement designs.
- The final implementation stage brings all previous stages to life within your environment. Skilled specialists from HPE Advisory and Transformation services combine with our global partner supply chain to form an effective implementation service.

**Facility-as-a-service (FaaS)**

The essence of facility-as-a-service is to deliver an on-premises, modular data center designed specifically for the customer and deliver it in an OPEX fashion. It’s a modular data center provisioned through an ongoing, fully leveraged maintenance service agreement. In other words, Hewlett Packard Enterprise retains ownership. One of the principal benefits of FaaS is that it frees up capital that would otherwise be required to design and build a data center.

**Energy efficiency**

Energy services have always been a key part of the HPE DNA. We designed the first LEED certified data center in 2004 and have designed more than 50% of the world’s LEED gold and platinum data centers. In-house expertise ensures your data center is designed and operates as efficiently as possible. This is an important factor when considering more than half of monthly data center operating costs go toward paying utility bills.

Energy efficiency measured as PUE or Power Usage Effectiveness is a significant focus area for CIOs and data center managers seeking an improved bottom line and reduced carbon footprint. We help you understand your current state via our comprehensive Energy Efficiency Analysis, and define and execute an overall data center energy strategy. HPE Data Center Facilities Consulting also provides solutions for Service Providers through specialized services that understand the importance of cost, risk, and asset utilization.

Here you can see the full suite of services from strategy to design to implementation to assurance, and energy efficiency. These services help build the availability, reliability, and cost efficiency you need to run your business. So, we have services to help you formulate a data center strategy all the way through testing and commissioning, and ongoing operations consulting.

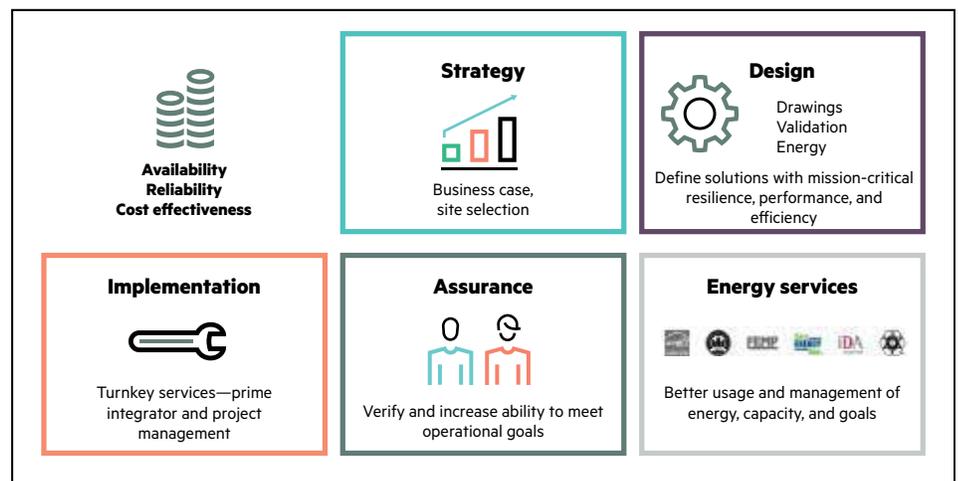


Figure 4. Suite of services

CenterPoint Energy, a public utility based in Houston, Texas supplies natural gas and electricity to 5.5 million customers. Data center executives realized the limitations of their legacy data center infrastructure and operations. Data growth would outpace their capabilities and apps were becoming more critical to the business. CenterPoint needed to modernize in order to meet availability demands and the diverse capabilities needed for today's idea economy. We worked closely with CenterPoint to accelerate value of data centers by

- Building greater agility to support infrastructure and operations
- Automating their systems and modernize their core IT that used less resources for production support and more for innovation
- Designing a new data center with modernized systems
- Migrating from a previously redundant availability data center to a primary one

According to CenterPoint IT executives, collaborative teamwork, expertise, and experience were cited as keys to the HPE relationship. They indicated that there are many vendors to choose from, but the HPE team came in as a partner, and not just another vendor. They listened carefully to CenterPoint IT team to bring about successful outcomes with their modernization projects.

Our strategy services offer expertise in a wide number of areas to help systematically integrate your IT and data center. We help you get the right mix of cloud and traditional infrastructure as part of your transformation to Hybrid IT, while you develop and translate your IT and business strategy into a data center facility strategy.

Our design teams literally produce the blueprints for all the power and cooling systems necessary for the IT systems to operate. These blueprints are then used by the construction contractors to build the data center facilities. The design process can also include 3D renderings and walk-throughs that really bring the designs to life.

Our implementation services are organized along three phases: construction, commissioning, and acceptance to bring design to life. We help you manage the complexities of turning their blueprints into a real, agile, and efficient operating data center facility.

Our assurance services offer commissioning, condition and capacity, operational consulting, and forensic analysis. As hybrid and traditional IT environments are complicated, you need to know your infrastructure will operate as intended. We have a group of facility experts in all regions that can deliver testing and commissioning services, data center operations consulting, forensic analysis (designed to determine the root cause of data center facility failures), and a number of assessment services that focus on determining the condition, capacity, and resiliency of the power, cooling, and control systems in a data center.

HPE Operations Advisory service guides you on staffing guidance and scheduling, vendor management, risk management, and improvement. We create a facilities runbook to ensure your data center teams have all of the necessary standard and emergency procedures, risk mitigation plans, and the like at their fingertips. And we can help train them in effective data center operations.

## Why HPE?

Today, Hewlett Packard Enterprise is one of the world's largest providers of information technology infrastructure, software, services, and solutions to organizations of all sizes. We bring the advantages of that scale, and the breadth and depth of a complete end-to-end portfolio to support your strategic initiatives with less risk and disruption.

HPE Data Center Facilities Consulting offers a true partnership where collaborative people, empowering technology, and transformative ideas accelerate change. We accelerate innovation, transformation, value, and the possibilities for the future. Our goal is help you build IT solutions that will meet disruption and transform and accelerate your business to succeed in the digital age. To partner with the business in the idea economy, IT must transform from a cost center to a business value creator.

Our transformation areas deliver solutions that solve your top-of-mind problems. HPE Technology Services Consulting is uniquely positioned to deliver IT solutions as a services-led experience. We advise, transform, and integrate solutions. We identify appropriate architectures and appropriate technologies. We have tools to help modernize and migrate your environment.



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